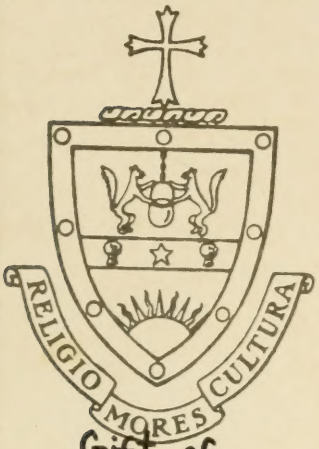
University of Scranton
The Library




Gift of
Roger J. Howell

For Reference

Not to be taken from this room

# REPORT

OF THE

# BUREAU OF MINES

OF THE

## Department of Internal Affairs of Pennsylvania,

INCLUDING REPORTS OF MINE INSPECTORS.

1897.

---

WM. STANLEY RAY,
STATE PRINTER OF PENNSYLVANIA.
1898.

TN
805
P4
3
P97

# REPORT

OF THE

# BUREAU OF MINES.

## COMMUNICATION.

Department of Internal Affairs,
Harrisburg, May 1, 1898.

To His Excellency, Daniel H. Hastings, Governor of Pennsylvania:

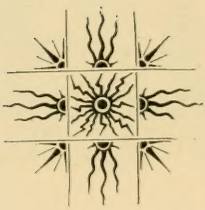
Sir: In compliance with the requirements of the Act of June 2d, 1891, and that of May 15, 1893, relative to the Mine Inspectors' Reports of the Anthracite and Bituminous coal regions, I have the honor to present to you for transmission to the General Assembly the report of the Bureau of Mines, together with the reports of the Mine Inspectors of this Commonwealth for the year 1897.

Very respectfully,

JAMES W. LATTA,
Secretary of Internal Affairs.



A—10—97



# LETTER OF TRANSMITTAL.

Harrisburg, Pa., March 1, 1898.

Hon. James W. Latta, Secretary of Internal Affairs, Commonwealth of Pennsylvania:

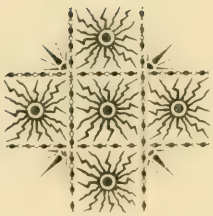
Sir: In accordance with section 5 of an act establishing a Bureau of Mines in the Department of Internal Affairs, approved July 15, A. D. 1897, I have the honor to transmit the Annual Report of the Bureau of Mines for the year ending December 31, 1897, together with the reports of the several mine inspectors of the Anthracite and Bituminous districts.

Very respectfully,

ROBERT BROWNLEE,
Chief of Bureau of Mines.

# CONTENTS.


| | Page. |
|---|---|
| Report of the Inspector of the First Anthracite District, | 1 |
| Report of the Inspector of the Second Anthracite District, | 25 |
| Report of the Inspector of the Third Anthracite District, | 63 |
| Report of the Inspector of the Fourth Anthracite District, | 87 |
| Report of the Inspector of the Fifth Anthracite District, | 125 |
| Report of the Inspector of the Sixth Anthracite District, | 161 |
| Report of the Inspector of the Seventh Anthracite District, | 189 |
| Report of the Inspector of the Eighth Anthracite District, | 207 |
| Report of the Inspector of the First Bituminous District, | 233 |
| Report of the Inspector of the Second Bituminous District, | 261 |
| Report of the Inspector of the Third Bituminous District, | 297 |
| Report of the Inspector of the Fourth Bituminous District, | 327 |
| Report of the Inspector of the Fifth Bituminous District, | 343 |
| Report of the Inspector of the Sixth Bituminous District, | 375 |
| Report of the Inspector of the Seventh Bituminous District, | 399 |
| Report of the Inspector of the Eighth Bituminous District, | 427 |
| Report of the Inspector of the Ninth Bituminous District, | 465 |
| Report of the Inspector of the Tenth Bituminous District, | 485 |



# INTRODUCTION

TO

# REPORT OF BUREAU OF MINES.

In view of the short time I have been in office, and the magnitude of the coal interests of this State, it would be egotism on my part to attempt, nor do I believe it can be expected that I should have much to offer. In compliance with the law to which I am subject, and which is not what it should be in some of its most essential features, I submit the following:

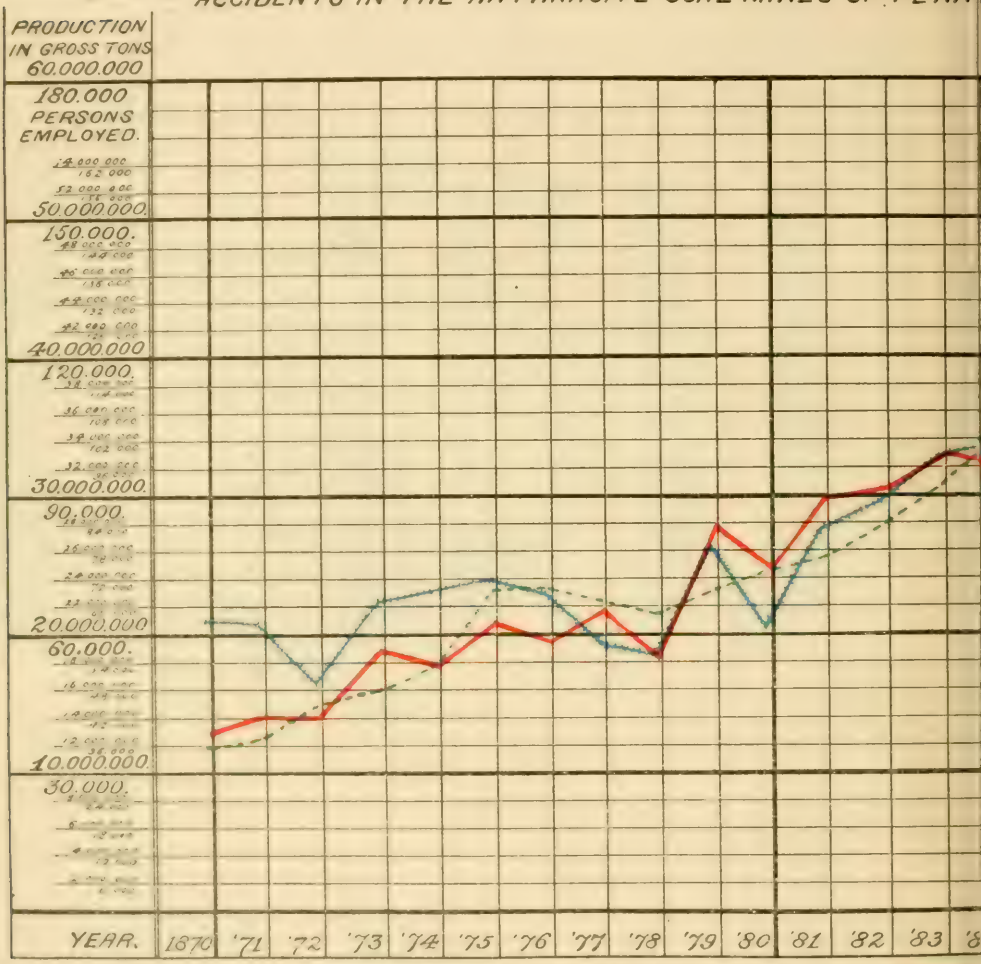
On my induction into office, my attention was called to the introduction of the Mine Inspectors' Report of 1896, and especially to the passage that states: "Although for the last decade more has been done in the way of legislation for the protection of the lives and limbs of persons employed in and about the mines of this State, yet the results as to accidents have not been such as to reflect credit on those who have had to execute the laws." Actuated by a desire to change these conditions, if possible, I have given this subject considerable thought and attention, and while there is, no doubt, room for improvement, it is gratifying to know that since the laws were enacted for the protection of those employed in and about the mines of this State, the number of accidents compared with the number of employes and number of tons of coal mined has been much less than before that period, and in the face of very much greater dangers. I beg leave to refer to the report of G. M. Williams, Inspector of the Fourth Anthracite District, where will be found a table showing the production of coal, the number of persons employed, the number in each class of fatal accidents and tons of coal mined per life lost, in each year from 1871 to 1897 inclusive in the Fourth Anthracite District. This is perhaps, in many respects, the most dangerous district in the anthracite region, and I believe it is too large for one man to inspect. Notwithstanding this, a perusal of Mr. William's report shows his familiarity with every mine and its peculiar condition.

Prior to 1870, no report of accidents in the anthracite mines was kept. The following table presents some data of fatal accidents reported by the anthracite mine inspectors since that year:

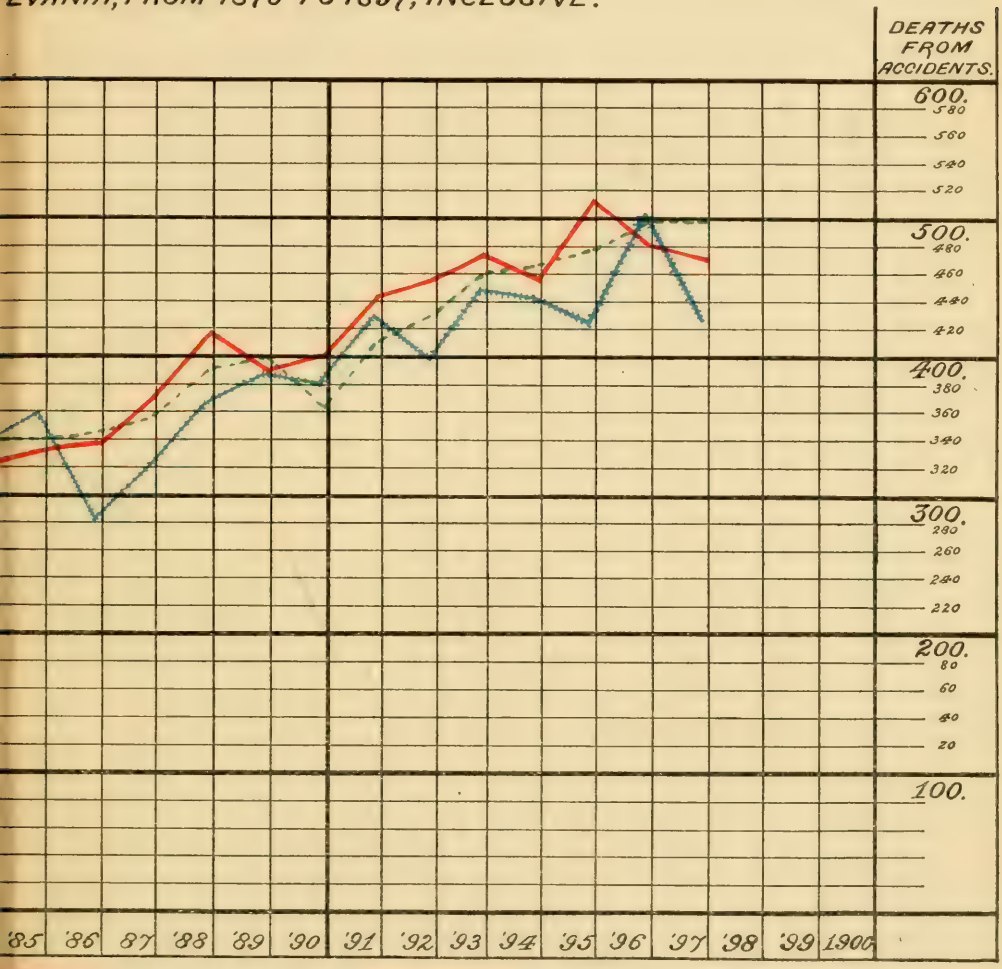
## Fatal Accidents per 1,000 Employes in and About the Anthracite Mines, and Tons of Coal Mined per Fatal Accident, from 1870 to 1897 Inclusive.

| Year. | Employes. | Fatal accidents. | Fatal accidents per 1,000 employes. | Tons mined. | Tons mined for each fatal accident. |
|---|---|---|---|---|---|
| 1870 | 35,600 | 211 | 5.929 | 12,653,575 | 59,970 |
| 1871 | 27,488 | 210 | 5.601 | 13,868,087 | 66,038 |
| 1872 | 44,745 | 166 | 3.709 | 13,899,976 | 83,734 |
| 1873 | 48,199 | 224 | 4.647 | 18,751,358 | 83,711 |
| 1874 | 53,402 | 231 | 4.325 | 17,794,857 | 77,034 |
| 1875 | 69,966 | 238 | 3.401 | 20,895,220 | 87,795 |
| 1876 | 70,474 | 228 | 3.235 | 19,611,071 | 86,013 |
| 1877 | 66,842 | 194 | 2.902 | 22,077,869 | 113,803 |
| 1878 | 63,964 | 187 | 2.923 | 18,661,577 | 99,794 |
| 1879 | 68,847 | 262 | 3.805 | 27,711,250 | 105,768 |
| 1880 | 73,373 | 202 | 2.753 | 24,843,476 | 182,987 |
| 1881 | 76,031 | 273 | 3.591 | 30,210,018 | 110,659 |
| 1882 | 83,242 | 293 | 3.520 | 30,867,301 | 105,349 |
| 1883 | 91,411 | 323 | 3.533 | 33,200,608 | 104,336 |
| 1884 | 101,078 | 332 | 3.284 | 32,561,390 | 98,076 |
| 1885 | 100,534 | 356 | 3.541 | 23,520,941 | 94,160 |
| 1886 | 103,034 | 279 | 2.707 | 34,064,543 | 122,095 |
| 1887 | 106,574 | 316 | 2.965 | 37,137,251 | 117,522 |
| 1888 | 117,290 | 364 | 3.103 | 41,638,426 | 114,391 |
| 1889 | 119,007 | 384 | 3.226 | 39,015,835 | 101,604 |
| 1890 | 109,166 | 378 | 3.463 | 40,080,355 | 106,033 |
| 1891 | 123,345 | 427 | 3.463 | 44,320,967 | 103,796 |
| 1892 | 129,797 | 396 | 3.051 | 45,738,373 | 115,500 |
| 1893 | 138,002 | 445 | 3.224 | 47,179,563 | 106,021 |
| 1894 | 139,655 | 439 | 3.144 | 45,506,179 | 103,659 |
| 1895 | 143,610 | 422 | 2.939 | 51,207,000 | 121,344 |
| 1896 | 149,670 | 502 | 3.354 | 48,074,330 | 95,766 |
| 1897 | 149,557 | 424 | 2.836 | 46,947,354 | 110,725 |

DIAGRAM, SHOWING THE NUMBER OF PERSONS EMPLOYED, NUMBE
ACCIDENTS IN THE ANTHRACITE COAL MINES OF PENN

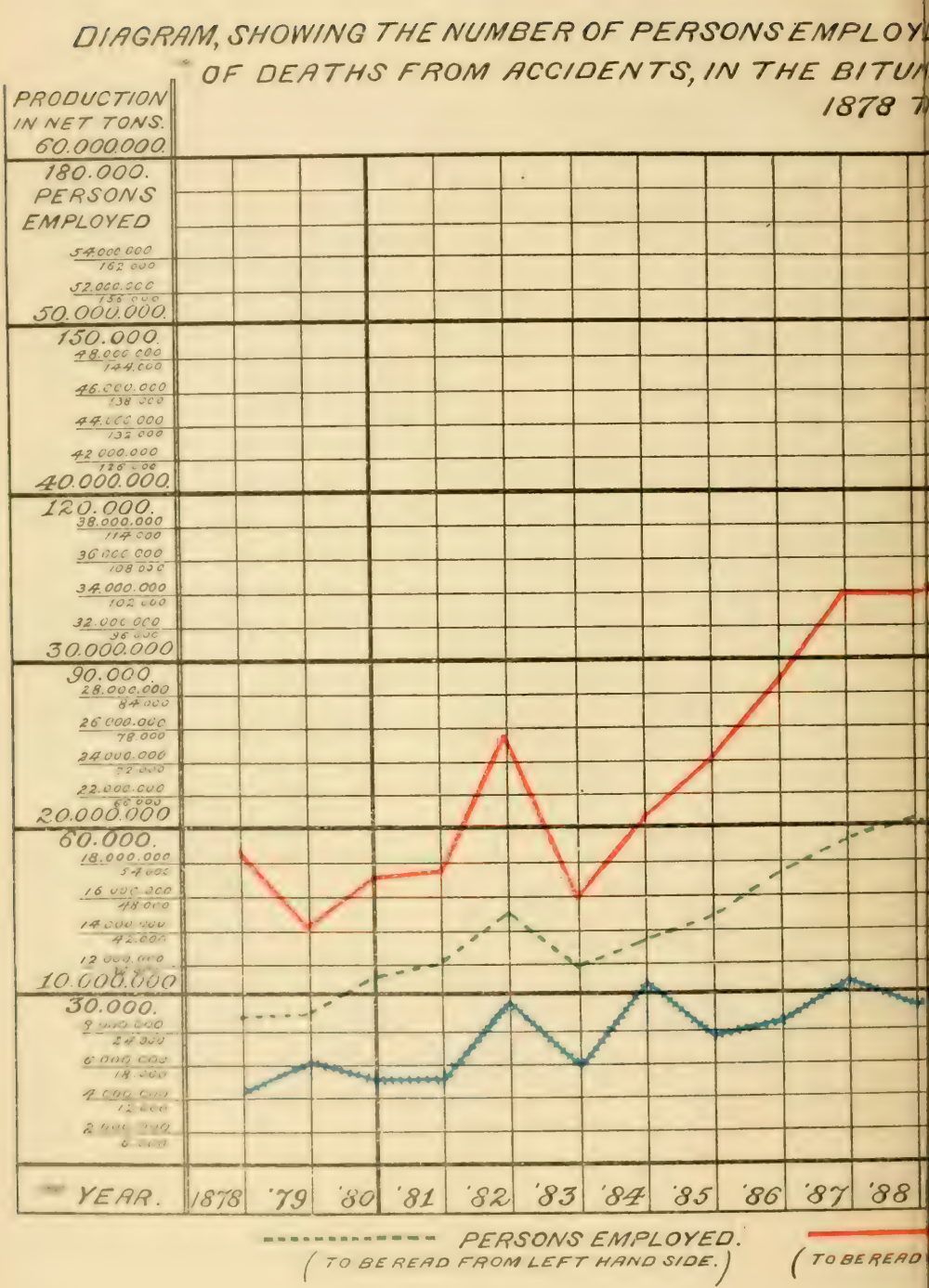


OF GROSS TONS MINED, AND THE NUMBER OF DEATHS FROM
'LVANIA, FROM 1870 TO 1897, INCLUSIVE.

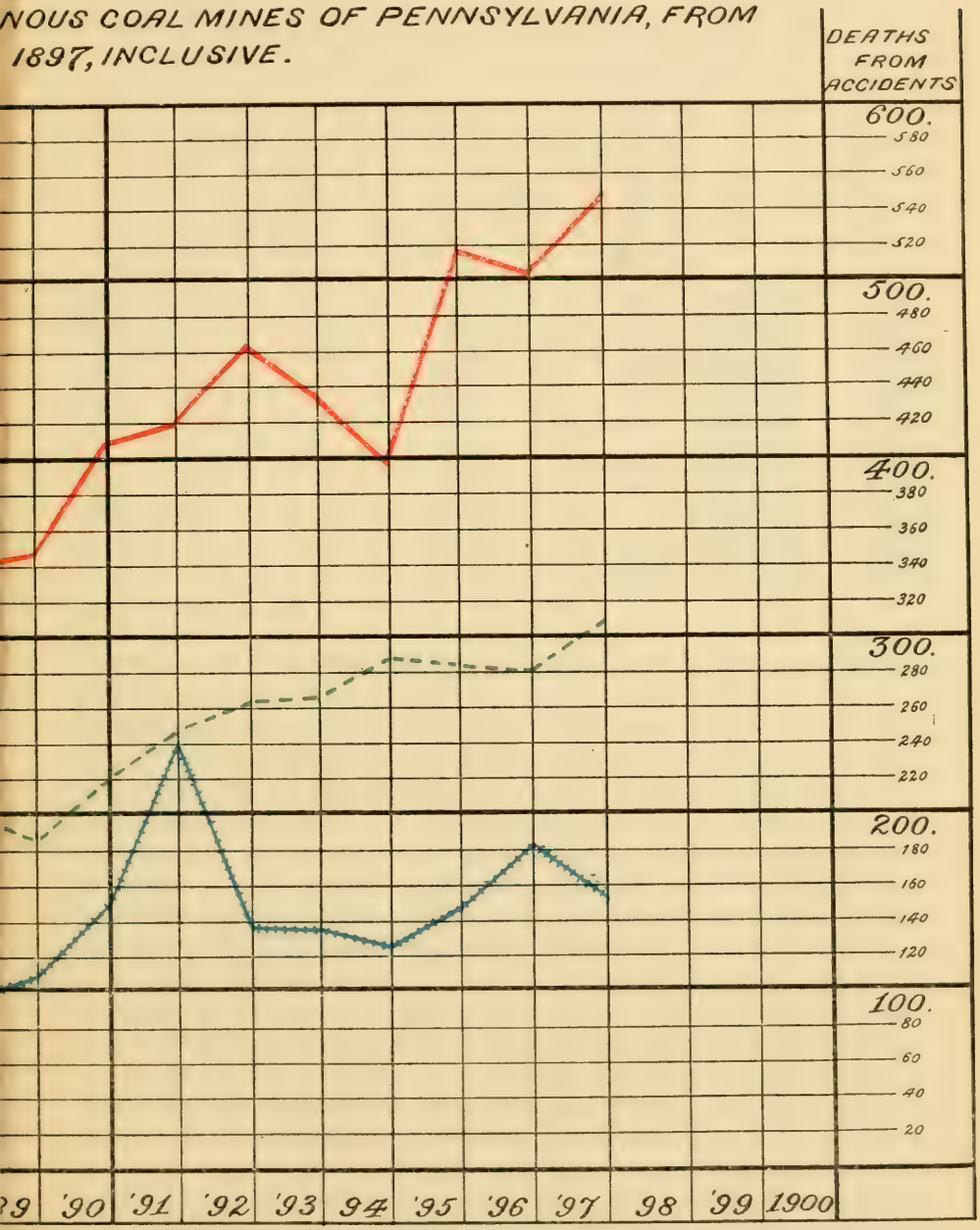



PRODUCTION. (READ FROM LEFT HAND SIDE.)

DEATHS FROM ACCIDENTS. (TO BE READ FROM RIGHT HAND SIDE.)


DIAGRAM, SHOWING THE NUMBER OF PERSONS EMPLOY
OF DEATHS FROM ACCIDENTS, IN THE BITU
1878 T
PRODUCTION IN NET TONS.
60.000.000
180.000.
PERSONS EMPLOYED
54.000.000
162.000
52.000.000
156.000
50.000.000.
150.000.
48.000.000
144.000
46.000.000
138.000
44.000.000
132.000
42.000.000
126.000
40.000.000.
120.000.
38.000.000
114.000
36.000.000
108.000
34.000.000
102.000
32.000.000
96.000
30.000.000
90.000.
28.000.000
84.000
26.000.000
78.000
24.000.000
72.000
22.000.000
66.000
20.000.000
60.000.
18.000.000
54.000
16.000.000
48.000
14.000.000
42.000
12.000.000
36.000
10.000.000
30.000.
9.000.000
24.000
6.000.000
18.000
4.000.000
12.000
2.000.000
6.000
YEAR.
1878
'79
'80
'81
'82
'83
'84
'85
'86
'87
'88
PERSONS EMPLOYED.
(TO BE READ FROM LEFT HAND SIDE.)
(TO BE READ

D, NUMBER OF NET TONS MINED, AND THE NUMBER
NOUS COAL MINES OF PENNSYLVANIA, FROM
1897, INCLUSIVE.




PRODUCTION.
(FROM LEFT HAND SIDE.)

DEATHS FROM ACCIDENTS.
(TO BE READ FROM RIGHT HAND SIDE.)

Fatal Accidents per 1,000 Employes in and About the Bituminous Mines, and tons of coal mined per Fatal Accident, from 1878 to 1897 inclusive.

| Year. | Employes. | Fatal accidents. | Fatal accidents per 1,000 employes. | Tons mined. | Tons mined for each fatal accident. |
|---|---|---|---|---|---|
| 1878,* | 25,493 | 43 | 1.687 | 18,862,208 | 438,656 |
| 1879,* | 26,328 | 60 | 2.278 | 14,279,244 | 237,987 |
| 1880,* | 32,964 | 48 | 1.456 | 17,169,448 | 357,697 |
| 1881,* | 35,189 | 49 | 1.392 | 17,509,642 | 357,339 |
| 1882,* | 44,793 | 94 | 2.098 | 25,663,283 | 273,014 |
| 1883,* | 35,049 | 54 | 1.541 | 15,908,261 | 294,597 |
| 1884, | 39,994 | 105 | 2.625 | 20,553,090 | 195,743 |
| 1885, | 44,145 | 72 | 1.630 | 24,030,919 | 333,763 |
| 1886, | 51,846 | 81 | 1.562 | 28,607,173 | 353,175 |
| 1887, | 57,774 | 103 | 1.783 | 33,902,030 | 329,146 |
| 1888, | 61,564 | 89 | 1.445 | 33,832,285 | 380,138 |
| 1889, | 55,600 | 105 | 1.888 | 34,625,449 | 329,766 |
| 1890, | 66,851 | 146 | 2.183 | 40,740,521 | 279,045 |
| 1891, | 74,166 | 236 | 3.182 | 41,831,456 | 177,252 |
| 1892, | 78,784 | 133 | 1.688 | 46,225,552 | 347,560 |
| 1893, | 79,834 | 131 | 1.640 | 43,422,498 | 331,469 |
| 1894, | 86,255 | 122 | 1.414 | 39,800,210 | 326,231 |
| 1895, | 84,980 | 145 | 1.706 | 51,413,112 | 354,573 |
| 1896, | 83,904 | 180 | 2.145 | 50,273,653 | 279,298 |
| 1897, | 93,152 | 149 | 1.599 | 54,674,272 | 366,941 |

* The returns not complete.

The period covered by this table is co-extensive with mine legislation in the State. Prior to 1870 the loss of life, it is believed, was for several years proportionately even greater than that shown in the table. While it is true that the number of accidents has been reduced since 1870, yet notwithstanding the dangers incident to mining have increased, still with all the requirements of law as to inspection and improved methods of working, and taking into account the dangers peculiar to coal mining, especially anthracite coal, the reason for such a large number of accidents, in a measure, still seems unexplained. The high death rate in the anthracite region is in part accounted for by the great thickness of the seams or beds, and their frequent heavy pitch, the depth of the mines and their gaseous condition, and the great quantities of explosives used in the mining of coal. There is a class who think and say the mine inspectors are to blame for the large number of accidents. For my part, I so far fail to see how the inspectors are to blame. The inspector's duty is to examine the mine and see that it is in a safe and lawful condition, and with a few exceptions they so report them. Not so with the report of the cause and responsibility of many accidents, as a perusal of the reports will show, and of which in a number of cases reports show the cause to be carelessness on the part of the injured. With all the object lessons presented of men maimed and killed, there is evidence

where men deliberately and against all laws and common sense, enter a mine or a place in a mine with a naked light, when they have been repeatedly told not to do so, and even going so far as to secrete matches or manufacture a key to open their safety lamps in order to get a light for their pipes. They fail to put up props at the proper time, neglect putting sprags to protect the coal from falling on them, use an iron bar to ram a cartridge back in a hole, and do many other things that they know themselves they should not do, all of which are prohibited by law. They may do these things with impunity for a while, but the danger is there, and like a thief in the night, it cometh when least expected, and the inevitable results follow. These are conditions that are undoubtedly difficult to combat. No occasional inspection or regulations on paper can take the place of intelligent supervision of the mines. A mine foreman's first duty should be the care of the health and lives of the men in his charge; kind but rigid discipline should be their motto. Sentiment should have no place in the administration of the laws. They should at all times show a good example by a strict observance of the laws, and should not at any time lose sight of the fact, that these are duties they owe to themselves, the men they have charge of, as well as to the State which has commissioned them for that purpose. I believe with Inspector Williams that what is really necessary to reduce the number of accidents in these days is a discipline that compels obedience to well known rules. Mine foremen should not think that because they have received or hold a certificate, the law is complied with. They must, by their ability and effort fulfil the duties that are implied in that certificate. Never has there been a time when this was more apparent. The time has come when, if the certificated mine foreman wishes to retain a certificate and position, he must have fewer accidents, which are caused by violations of the mine laws. Miners and men employed in and about the mines should be made to observe the laws and rules prescribed for their safety, as it is not only their own lives they put in jeopardy, but the lives of their fellow-workmen as well. Each man should be a watch on his neighbor, and when he sees or knows of him, in any way, breaking the law, he should report him to the proper authorities. I know that men say they don't like to tell the boss about any misdemeanor of their friends, but the man who breaks the law is not their friend, but their worst enemy, and should be caused to legally suffer for his misdeeds. We seldom hear, however, of any one being prosecuted. It is interesting to note the difference in this connection between the mines in Scotland as compared with the mines in this State. In 1896 in Scotland there were 486 prosecutions of workmen and 469 convictions. The following table shows the nature of the offences, number of prosecutions under each offence, number of convictions, cases which were withdrawn, total amount of fines and costs imposed:

## The result of the prosecutions instituted by the inspectors of mines, the Procurators Fiscal in Scotland and the Owners and Agents of Mines for 1896. Prosecutions of Workmen for Offences under the Mines Acts.

| Name of Offence. | Prosecutions. | Convictions. | Cases withdrawn. | Cases dismissed. | Total amount of fines and costs imposed. |
|---|---|---|---|---|---|
| | | | | | £. s.d. |
| 1. Obstructing airways or interfering with the ventilation, | 13 | 13 | ..... | ..... | 10. 7. 0 |
| 2. Contravention of Rules About Safety Lamps | | | | | |
| Unlocking a safety lamp or having a contrivance for unlocking, | 20 | 20 | ..... | ..... | 29. 8. 5 |
| Using a damaged safety lamp, | 5 | 5 | ..... | ..... | 6.14. 3 |
| Having a safety lamp near the swing of the pick, | 14 | 14 | ..... | ..... | 11.18. 6 |
| Sleeping while in charge of a safety lamp, | 11 | 11 | ..... | ..... | 14.18. 0 |
| Miscellaneous, | 23 | 21 | ..... | 2 | 27.16. 6 |
| 3. Contravention of Rules About Matches and Smoking. | | | | | |
| Having matches in his possession in the mine, | 51 | 50 | ..... | 1 | 50. 0. 7 |
| Having a pipe in his possession or smoking in the mine, | 48 | 47 | ..... | 1 | 50.19. 0 |
| 4. Contravention of Rules About Explosives. | | | | | |
| Illegal thawing, | ..... | ..... | ..... | ..... | ..... |
| Taking loose powder into the mine, | 16 | 14 | 2 | ..... | 11. 7. 6 |
| Using insecure canisters, | 3 | 3 | ..... | ..... | 3. 7. 0 |
| Unramming shots, | 11 | 11 | ..... | ..... | 13. 9. 4 |
| Miscellaneous, | 34 | 31 | 2 | 1 | 27. 4. 6 |
| 5. Contravention of Rules About Timber. | | | | | |
| Neglecting to set sprags, | 30 | 29 | ..... | 1 | 24. 1. 6 |
| Neglecting to set props, | 15 | 14 | ..... | 1 | 15.10. 6 |
| 6. Contravention of Rules About Mine Cars or Inclined and Engine Planes. | | | | | |
| Drawing in front of cars, | 6 | 5 | ..... | 1 | 2. 1. 0 |
| Riding or allowing riding on cars, | 26 | 26 | ..... | ..... | 18.15. 0 |
| Miscellaneous, | 21 | 21 | ..... | ..... | 15. 3. 6 |
| 7. Disobeying orders, | 24 | 24 | ..... | ..... | 24.10. 0 |
| 8. Cruelty to animals, | 14 | 12 | ..... | 2 | 14.13. 0 |
| 9. Being about the mine in a state of intoxication, | 2 | 2 | ..... | ..... | 3.15. 6 |
| 10. Miscellaneous, | 99 | 96 | ..... | 3 | 83. 6. 7 |
| Total, | 486 | 469 | 4 | 13 | 459. 6. 8 |

It is also interesting to note that owners and managers are not allowed to violate the mine laws with impunity, as the following table shows:

Prosecutions of Owners, Managers, etc., for Offences under the Mines Acts.

| Name of Offence. | Prosecutions. | Convictions. | Cases withdrawn. | Cases dismissed. | Total amount of fines and costs imposed. |
|---|---|---|---|---|---|
| | | | | | £. s.d. |
| 1. Employing boys, girls or women at illegal hours or times of employment, | 1 | 1 | ..... | ..... | 2. 0. 0 |
| 2. Offences connected with check weighers, | 1 | 1 | ..... | ..... | 5.10. 6 |
| 3. Neglecting Rules as to Registers, Returns, Notices, Plans or Maps. | | | | | |
| Not keeping up registers, | 2 | 2 | ..... | ..... | 2. 6. 0 |
| Not sending annual returns, | 2 | 2 | ..... | ..... | 4.12. 2 |
| Not sending statutory notices, | 3 | 2 | ..... | 1 | 8. 4. 0 |
| Not keeping up maps, | 2 | 2 | ..... | ..... | 4. 8. 6 |
| 4. Contravention of General and Special Rules. | | | | | |
| Inadequate ventilation, | 8 | 5 | ..... | 3 | 30.19. 0 |
| Not keeping up report books, | 5 | 5 | ..... | ..... | 7.13. 4 |
| Breaches of rules about safety lamps, | 2 | 2 | ..... | ..... | 21. 8. 0 |
| Breaches of rules about explosives, | 8 | 3 | 2 | 3 | 20. 3. 7 |
| Not providing proper signals, | 1 | 1 | ..... | ..... | 1. 3. 4 |
| Not providing proper manholes, | 4 | 2 | 2 | ..... | 6. 0. 0 |
| Not securing roofs and sides, | 1 | 1 | ..... | ..... | 0.10. 0 |
| Not fencing entrance to shafts, | 2 | 2 | ..... | ..... | 21. 8. 0 |
| Not fencing machinery, | 5 | 5 | ..... | ..... | 9. 8. 0 |
| Miscellaneous breaches of the general or special rules, | 25 | 21 | ..... | 2 | 57.10.10 |
| 5. Not fencing shafts at abandoned mines, | 6 | 5 | 1 | ..... | 25. 8. 0 |
| 6. Other offences, | 8 | 8 | ..... | ..... | 46. 1. 6 |
| Total, | 84 | 70 | 5 | 9 | 258.13. 9 |

In comparison with the above, the following table shows the number of prosecutions under each offence, the number of convictions, cases withdrawn, total amount of fines and costs imposed, reported by the several inspectors in this State for the year 1897:

The Result of the Prosecutions Instituted by the Inspectors of Mines, of the Commonwealth of Pennsylvania for the Year 1897.

Prosecutions of Operators, Mine Foremen and Others.

| Name of Offence. | Prosecutions. | Convictions. | Cases withdrawn. | Cases dismissed. | Total amount of fines and costs imposed. |
|---|---|---|---|---|---|
| 1. Inadequate ventilation, | 4 | ..... | 4 | ..... | $10 00 |
| 2. Operating a mine without employing a certificated mine foreman, | 1 | ..... | 1 | ..... | 6 16 |
| 3. Striking matches in a mine where naked lights are prohibited, | 1 | 1 | ..... | ..... | ..... |
| 4. Obstructing an air shaft, | 3 | 3 | ..... | ..... | 146 58 |
| Total, | 9 | 4 | 5 | ..... | $192 74 |

There is no doubt but the prosecutions of Scottish miners simply represent certain bad cases which happened to be detected. Is it possible that with our mixed mining population they are more law abiding, and that that is the cause of the great difference in the prosecutions for the contravention of the mining laws? It is much more reasonable to suppose that the laws are not enforced as they should be, and as has already been said, that the lack of discipline is in a great measure the cause of many of the accidents, as may be seen in inspectors' reports.

There is no question but if the mine rules, general and special, were more rigorously enforced, the number of accidents would be very materially reduced. Some people attribute the cause of so many accidents to the large foreign element employed in and about the mines. I have my doubts as to that being the cause. My experience and observation have been that this class are as careful of danger, if not more so, than many of the experienced miners. I know I will be criticized for those expressions, but they stand good until proven otherwise. In many sections the foreign element is largely in the majority, and produces the greater portion of the coal. It is not, therefore, strange that we find a great number of accidents charged to their account, and while it is true that their habits and customs are not all that could be desired, it is at the same time to be hoped that the influence of American laws and American institutions will have the same effect on them that it has had on others. Wishing to know

something about the number of native born and the number of foreign born men employed in the mines of this State, I inquired of the several mine superintendents as to the number of men employed, the number of native born, the number of naturalized citizens and the number of aliens, with the following result:

| | |
|---|---|
| Number of employes in 150 anthracite mines from which returns have been received, | 59,823 |
| Of these there were native born, | 23,402 |
| Naturalized citizens, | 13,561 |
| Aliens, | 22,860 |
| Returns from 400 Bituminous Mines Show: | |
| Number of employes, | 59,903 |
| Native born, | 23,675 |
| Naturalized citizens, | 14,691 |
| Aliens, | 21,537 |

It will be noticed from the above figures that according to the number employed in the anthracite and bituminous regions, the number of native born, naturalized citizens and aliens is nearer alike than perhaps would have been believed, and while it is true that the demand of the market could be supplied with many less men, it is also true that the production of coal is largely dependent on the so-called foreign element. Referring to the demand for coal it will be noticed that the production of anthracite for 1897 has decreased 1,126,976 gross tons, the cause of which I am not prepared to state, unless it may be that the cheaper bituminous coal is superseding it, and this is apparently true, for while the production of anthracite has decreased, the production of bituminous has increased 4,400,616 net tons, notwithstanding the prolonged strike in the western part of the State. I do not know whether the tonnage would have been still farther increased over those figures had there been no strike, but I do know that those engaged in the strike could not have been compensated for the misery, trouble and hardships endured by themselves and families during the period of its existence, even if it had been successful in the end. It is fair to assume that the demand for coal was fully supplied. It showed, as has already been stated, that there were too many mines and too many men engaged in the business, and this perhaps is the greatest reason for the suffering and discontent amongst the miners in the State, and not because the miner does not get enough for his work under existing conditions, but because he cannot get the work to do. It is difficult to prescribe a remedy for these conditions. Greater minds than mine have tried to solve it and failed. What is, and has always appeared to me to be a proper course to pursue, is for the ambitious man to rise above those conditions. He should not think that because he was born a miner he cannot do something else. He should take advantage of

his many opportunities; spend his spare moments in self improvement and stay away from the saloon. Let him read and keep informed of the current events of the day, all of which will tend to broaden his capabilities for good, and better enable him to judge for himself when and how to take advantage of the conditions that maintain and make him in intelligence the equal of his employer, and much more the equal of the demagogue who now profits by his credulity.

Blanks were sent to all the operators of mines and collieries in the bituminous region asking for information in regard to the strikes that occurred during 1897. Returns which could be tabulated were received from 54 mines in which strikes had occurred. The others that were received showed either that there had been no strikes, or the returns were made in such a manner as to be useless for statistical purposes. In the 54 mines from which returns were made the strikes were from the following causes:

| | |
|---|---|
| For increase of wages, | 44 |
| Against reduction of wages, | 4 |
| In sympathy with other strikers, | 4 |
| Against dockage, | 1 |
| For payment of wages overdue, | 1 |
| Total, | 54 |
| Ordered by labor organization, | 50 |
| Not ordered by labor organization, | 4 |
| Of these there were— | |
| Successful, | 25 |
| Unsuccessful, | 13 |
| Partly successful, | 16 |
| Number of employes engaged and involved in strikes, | 7,614 |
| Loss to employes in wages, | $668,646 |
| Loss to employers, | 76,815 |
| Average loss to each employe, | 88 |

Knowing that the production of clay and shale from coal mines and from mines operated exclusively for clay is assuming considerable proportions, and as no notice, so far as I am aware, has been taken of this in the industrial statistics of the State, cards were sent to all those who were known to be producing clay. Twenty-four of them in part answered the questions asked, from which the following is deduced:

| | |
|---|---|
| Mines producing fire clay, | 20 |
| Tons produced, | 353,889 |
| Average price per ton, | $1 15 |
| Number of men employed, | 339 |
| Thickness of seam, | 18 in. to 25 ft. |

Prices range from 70 cents to $2 per ton.

The reports were received from four coal mines which were producing clay or shale that is used in making front brick. The shale from those mines is mined in connection with the coal, and add materially to the output of the mine.

Tons produced from the four mines,..... 90,837
Average price per ton, ..... $0 43
Thickness of seam, .....2 to 6 feet.

The bricks made from these shales after being burned are usually of a beautiful buff color, and in many cases sustain a greater weight than granite. It has occurred to me that those who are interested in good roads might be aided by studying the possibility of these shales being used, especially where the native rocks are not suitable for road purposes, for in those localities shale suitable for brick usually abounds. It is a fact that the most refractory clays or shales are usually found near No. 12 or the Pottsville conglomerate and may be found in localities where the coal has been all carried away. It is from this geological position that clay suitable for fire brick of every description and quality is found; for rolling mills, glass furnaces, bessemer, open hearth and crucible steel works, foundries, malleable iron works, glass works and every purpose for which fire bricks are used. The following is an analysis of clay taken from near the conglomerate and below the seam of coal, and is divided into three sections designated (1) hard clay, (2) under strata, and (3) sand:

| | Hard clay. | Under strata. | Sand. |
|---|---|---|---|
| Silica, | 42.32 | 45.75 | 60.80 |
| Alumina, | 37.01 | 39.14 | 28.18 |
| Lime, | 0.47 | trace | ..... |
| Magnesia, | 0.16 | trace | ..... |
| Piroxide of iron, | 0.95 | 1.34 | 1.34 |
| Alkalies, | 1.29 | 2.05 | 1.48 |
| Titanic acid, | 3.83 | ..... | ..... |
| Undetermined matter and loss, | 0.23 | 0.36 | 0.20 |
| Water of constitution, | 13.74 | 11.39 | 8.02 |
| Total, | 100.00 | 100.00 | 100.00 |

The hard clay is the base and by the use of it in conjunction with the other clays the brick is produced suitable for the varied purposes for which fire brick is used.

There is no doubt that large areas worth exploring for these clays exist in localities where it has been given no attention and where it could be utilized with profit.

## Deductions from Mine Inspectors' Reports.

First anthracite district inspector calls attention to the cause of the large percentage of fatal accidents in his district, which he

states is from falls of roof. He explains the peculiar conditions that maintain in the district in this particular. His report should be read and studied by the people employed in the district.

Second anthracite district inspector calls attention to the method of mining and developing coal properties and shows wherein present and past methods are both wasteful and expensive. The desire for present gain overrules the future, both as to the securing the largest quantity of coal and the consequent lengthening of the time of profitable investment. These remarks are worthy of consideration by all coal operators. Mr. Prytherch also calls attention to mine fires and their causes and gives valuable suggestions for their prevention. He is certainly right in recommending that wooden shanties and other timber structures should, as far as possible, be replaced by others built of incombustible materials, thereby reducing the large number of mine fires to the minimum. In view of the present danger of mine fires in the anthracite coal mines, Mr. Prytherch's suggestion of planning a successful method of fighting mine fires when they occur, is surely good advice and worthy of consideration. It will also be observed that he recognizes the necessity of the mine foremen having a better system and exercising greater discipline in the discharge of their duties.

Third anthracite district inspector reports quite a number of improvements, and it is worthy of note that they are all of a very substantial character. Attention is also called to a rush of sand and gravel in the working of the Mt. Lookout colliery, which fully illustrates one of the many dangers to be contended with in the mining of anthracite coal.

Fourth anthracite district. Attention has already been called to this report. It should be read to be appreciated, as it is both interesting and instructive.

Fifth anthracite district inspector's report shows the number of fatal accidents according to the number of tons produced, to be less than it has been for the last 10 years. He states that the conditions of the mines will compare favorably with those of any other mines similarly situated. He also reports many improvements that have been made; some of them of an exceptionally substantial character, especially the pumping station at the Hazleton shaft colliery. In the language of the inspector "The plant is very complete, and presents for consideration a standard for economics in modern mining." The report of the Cranberry mine fire is another evidence of the necessity of not using timber for pump houses or any other house in the mine. Nothing but non-inflammable materials should be used in such places.

Sixth anthracite inspector's report shows an increase of fatal accidents and a decrease in production. He calls attention to the fact

that the general condition of the mines of the district is yearly being improved. Notwithstanding this, the number of accidents increase, and judging from his remarks the lack of proper discipline has much to do with the number of fatal accidents in the districts.

Seventh anthracite district inspector reports a decrease in fatal accidents as compared with 1896 and an increase of non-fatal ones, which he attributes to the carelessness of the workingmen. He calls attention to the method of mining and robbing pillars at the Richards colliery of the Union Coal Company, at Mt. Carmel. This is well worthy the consideration and emulation of all mining men. It shows what thought, skill and well directed effort can accomplish in the saving of coal, even under great disadvantages, and it reflects great credit on Mr. Williams, who is superintendent of the colliery.

If all operators would employ experienced mining men as superintendents to manage their mines, how much more would the wealth of the State be enhanced by securing from nature's store house a greater portion of her hidden treasures. I see in the columns of the press that a resolution was passed at a recent meeting of the United Mine Workers to have the mining law repealed so far as it relates to the necessity for mine foremen having a certificate of competency. Rather than have that done, would it not be infinitely better to have a clause inserted in the law compelling all mine superintendents to pass an examination also? This, to my mind, would be a step in the right direction and would be a benefit to the State, the miners and the operators as well.

Eighth anthracite district inspector reports fewer fatal accidents than in 1896. He also says that a description of the fatal accidents is a very important feature of the report, and adds that in case a few copies should fall into the hands of those engaged in mining, it might be the means of preventing a repetition of many of the accidents. He also says that for a reduction in the number of accidents that are attributable to carelessness, we can look only to the workingmen themselves and those who are in daily supervision over them. It will be noticed that many substantial improvements have been made in this district also.

First bituminous mine inspector's report shows a decrease of 22 in the number of fatal accidents from that of the year 1896. Judging from the report it would seem that the inspector has a great deal of trouble in getting the officials to keep adequate ventilation in the mines and to comply with the legal requirements.

Second bituminous district inspector reports a material increase in the production of coal and coke in his district over that of 1896 and a decrease in the number of fatal accidents. The inspector also refers to the necessity of strictly enforcing the mine laws, thereby compelling miners and other employes to be more careful.

Third bituminous district inspector reports an increase in the number of accidents which is due in part to a boiler explosion, something unusual in the bituminous mines of this State. He also very pointedly refers to the necessity of workingmen exercising greater care before they can expect to escape the dangers of their occupation.

Fourth bituminous district inspector reports a very material increase in production for 1897, which he ascribes to the increased number of mining machines that are being used. He also reports a marked decrease in the number of fatal accidents, but fails to give an explanation for this decrease.

Fifth bituminous district inspector's report shows a marked increase in the production of coal and coke, also an increase in the number of persons employed. He also reports an increase in the number of fatal accidents which he attributes to the recklessness of the victims themselves. A perusal of his report shows that notwithstanding this, the mines in his district are in a better and safer condition and are more attentively looked after by the officers in charge than at any former period. There is, he says, still room for decided improvement.

Sixth bituminous district inspector reports a decrease in the number of fatal accidents and a large increase in the quantity of coal produced over that of 1896. He also says that many of the mines have been greatly improved by the adoption of better methods of mining. It will also be noticed that the quantity of coal mined is one-third more per fatal accident in 1897 than in 1896. There is also a large number of modern improvements being installed in this district.

Seventh bituminous district inspector reports that the mines in his district are in reasonably good condition, and the most prolific source of accidents is from the falling of roofs which is due to the incompetency of the miners. He also says that the strike of two months did not very materially affect the production as compared with 1896, the difference being only 624,450 tons, and had not several of the large mines been closed during the entire year, the production would not have been far short of that for 1896.

Eighth bituminous district inspector reports the mines in his district in fair condition as a whole, but complains of some of the mine foremen being inclined to violate the law rather than enforce its provisions. In speaking of accidents he calls special attention to two deaths during the year which were caused by the persons coming in contact with electric wires. It is true that electricity is no longer an experiment but has steadily advanced in its field of usefulness, and stands to-day as one of the most effectual aids in the economics of mining. It has made possible the mining of thin seams

of coal that to-day could not be mined by mule haulage. The electric locomotive is low and can be successfully operated in a height of four feet. On the other hand, a new element of danger has been introduced, as is shown by two men having been shocked to death by coming in contact with a live wire. This was caused by the use of small wires for conveying the current, which necessitates an increase in the voltage. This should not be allowed. Two hundred and fifty volts is enough, and even at that, it is possible to obtain a very severe shock, while with a 500 or 600 volt circuit in damp floors or in water, the results may be very serious, as has been shown.

Ninth bituminous district inspector's report shows a decrease in the production of coal which was caused by a strike that lasted three months. It is evident that had the mines in this district been in operation during that period, the production would have been increased considerably over that of 1896. The number of fatal accidents is the same for 1897 as for 1896. Fifty per cent. of these are attributed to carelessness which I would infer was superinduced by the lack of proper discipline in the mines. It will be noticed that the introduction of mining machines in the district has been the cause of an increased number of accidents.

Tenth bituminous district inspector's report shows that a large quantity of coal has been mined and shipped during the year. He says he has more trouble in getting the small operators to ventilate and drain their mines properly than he has with the larger concerns. Mr. Hampson submits a table prepared by one of the superintendents in his district, which shows the difference in the earning capacity of miners when they are all working under conditions that are exactly alike.

The accompanying tables show that the decrease in the production of anthracite begun in 1896 continued during 1897, though to a lesser degree, while the production of bituminous coal and coke shows a material increase. There has been a decrease in the number of fatalities in both anthracite and bituminous mines, but while the number of non-fatal accidents has decreased in the anthracite fields, they have increased in the bituminous. The decrease in fatalities and non-fatal accidents, however, is not large enough to indicate any material improvement in the safety of working in the coal mines, while an inspection of the classified table of accidents shows that, as heretofore, 50 per cent. have been due to falls of rock, slate and coal, thus indicating that the miner has not yet learned the lesson of self preservation, nor has he had it rigidly impressed upon him by a strict system of oversight. There were no unusually serious disasters during the year, and i ngeneral (with the exception of the above noted points), the statistics show but little variation from those of 1896. The quantities of powder and dynamite reported are in some instances

only approximate as it is impossible to secure accurate returns of these items where the explosives are not purchased directly from the companies. Among the miscellaneous accidents may be noted several boiler explosions and a number of fatalities from asphyxiation.

The increase in production per life lost shows a slight gain in the anthracite field and a very encouraging and material gain in the bituminous mines. Still, there has been but little change in the production per non-fatal accident.

TABLE showing total production, shipments, the increase or decrease in production in 1897 compared with that of 1896, number of employes, tons of coal produced per employe, tons of coal per underground workman, kegs of powder and pounds of dynamite used, number of horses and mules, number of steam boilers in use, fatal and non-fatal accidents, fatal and non-fatal accidents per 1,000 employes, tons of coal mined per life lost and per non-fatal accident, in the Anthracite Collieries of Pennsylvania.

| District. | Total productions, long tons. | Increase or decrease in production compared with 1896, long tons. | Total shipments, long tons. | Sold to local trade and used at mines for steam and heat, long tons. | Persons Employed. | | | Tons of coal produced per employe. | Tons of coal produced per underground workman. |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | In the mines. | On the surface. | Total. | | |
| First, | 6,249,833 | +32,786 | 5,984,047 | 495,230 | 13,384 | 4,682 | 18,066 | 346 | 467 |
| Second, | 5,985,630 | +89,961 | 5,456,556 | 524,267 | 11,551 | 5,027 | 16,578 | 361 | 518 |
| Third, | 5,875,823 | +160,894 | 5,466,974 | 408,849 | 12,031 | 5,895 | 17,926 | 328 | [illegible] |
| Fourth, | 7,457,418 | −560,434 | 6,565,852 | 891,565 | 17,357 | 8,293 | 25,650 | 291 | 430 |
| Fifth, | 5,487,550 | −384,877 | 4,758,842 | 675,945 | 8,866 | 8,253 | 17,119 | 321 | 619 |
| Sixth, | 6,475,920 | +71,099 | 5,625,688 | 856,073 | 12,032 | 9,024 | 21,056 | 307 | 538 |
| Seventh, | 5,108,948 | −485,701 | 4,377,761 | 316,960 | 12,379 | 7,291 | 19,670 | 260 | 412 |
| Eighth, | 4,306,222 | +66,375 | 3,762,483 | 557,119 | 8,212 | 5,280 | 13,492 | 319 | 524 |
| Totals for 1897, | 46,947,354 | −1,009,897 | 41,998,203 | 4,726,008 | 95,812 | 53,745 | 149,557 | *314 | *490 |
| Totals for 1896, | 47,957,251 | −3,249,756 | 43,523,427 | ..... | ..... | ..... | 149,611 | ..... | ..... |

\+ Increase 1897 compared with 1896.
— Decrease 1897 compared with 1896.
* Calculated by considering the entire region as one district.

NOTE.

Since the table showing the production, shipments, quantity used for steam and heat and sold to local trade in the anthracite region went to the printer, it has been discovered that the 2nd, 5th and 7th Inspectors, in the distribution of coal in their several districts, fail to account for all the coal produced. It would, therefore, be impossible to state which is correct, total shipments, or that sold to local trade and used in mines for steam and heat. The 1st, 6th and 8th districts show that there was more coal shipped, sold to local trade and used for steam and heat, than was produced. A reference to the 8th Inspector's report, table 2, will show that the difference, 13,380 tons was brought from other mines of the company and used at the Wadesville shaft for steam and heat.

The 1st bituminous Inspector's report shows that 6,379 tons are unaccounted for. Coke is manufactured in all the other districts, and as the quantity of coal made into coke is not stated, it would be impossible to tell if the distribution of the production is correct.

TABLE showing total production, shipments, the increase or decr ease in production in 1897 compared with that of 1896, number of employes, tons of coal produced per employe, tons of coal per un derground workman, kegs of powder and pounds of dynamite used, number of horses and mules, number of steam boilers in use, fa tal and non-fatal accidents, fatal and non-fatal accidents per 1,000 employes, tons of coal mined per life lost and per non-fatal acci dent, in the Anthracite Collieries of Pennsylvania—Continued.

| District. | Kegs of powder used. | Pounds of dynamite used. | Number of horses and mules. | Number of steam boilers. | Fatal accidents. | Non-fatal accidents. | Lives lost per 1,000 employes. | Number of non-fatal accidents per 1,000 employes. | Production per life lost, long tons. | Production per non-fatal accident. |
|---|---|---|---|---|---|---|---|---|---|---|
| First, | 223,811 | † | 1,828 | 484 | 53 | 125 | 2.93 | 6.92 | 117,921 | 49,989 |
| Second, | 217,693 | 83,463 | 2,122 | 609 | 58 | 149 | 3.5 | 8.99 | 103,200 | 40,172 |
| Third, | 203,742 | 109,672 | 2,091 | 618 | 63 | 145 | 3.51 | 8.10 | 93,267 | 40,523 |
| Fourth, | 199,503 | 259,310 | 2,531 | 1,186 | 60 | 269 | 2.34 | 10.49 | 124,290 | 27,723 |
| Fifth, | 97,842 | 931,572 | 1,854 | 1,287 | 33 | 114 | 1.93 | 6.66 | 166,289 | 48,136 |
| Sixth, | 146,777 | 233,528 | 2,072 | 903 | 73 | 73 | 3.46 | 3.46 | 88,711 | 88,711 |
| Seventh, | 113,142 | 258,361 | 2,038 | 843 | 46 | 119 | 2.39 | 6.04 | 111,064 | 42,932 |
| Eighth, | 69,688 | 429,746 | 1,341 | 719 | 38 | 112 | 2.81 | 8.30 | 113,322 | 38,448 |
| Totals for 1897, | 1,272,198 | ..... | 15,877 | 6,649 | 424 | 1,106 | *2.83 | 7.4 | *110,725 | *42,448 |
| Totals for 1896, | 1,292,866 | ..... | 16,425 | 7,431 | 502 | 1,165 | ..... | ..... | 95,532 | 41,165 |

† Not reported.
* Calculated by considering the entire region as one district.

TABLE showing total production, shipments, total production of coke in 1897 and the decrease in production compared with that of 1896, number of employes, tons of coal produced per employe, tons of coal per underground workman, kegs of powder and pounds of dynamite used, number of horses and mules, number of steam boilers in use, fatal and non-fatal accidents, fatal and non-fatal accidents per 1,000 employes, tons of coal mined per life lost and per non-fatal accident in the Bituminous Coal Mines of Pennsylvania.

| District. | Total production for 1897, short tons. | Increase or decrease in production compared with 1896, short tons. | Total shipments for 1897, short tons. | Sold to local trade and used at mines for steam and heat, short tons. | Total production of coke for 1897, short tons. | Increase or decrease in coke production compared with 1896, short tons. | Persons Employed. | | | Tons of coal produced per employe. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | In the mine. | On the surface. | Total. | |
| First, | 6,459,200 | —238,401 | 6,390,001 | 62,820 | ..... | ..... | 9,654 | 1,011 | 10,665 | 606 |
| Second, | 9,134,797 | +1,770,026 | 5,147,825 | 285,909 | 2,505,359 | +602,707 | 9,326 | 2,946 | 12,272 | 744 |
| Third, | 3,400,302 | +156,452 | 3,252,093 | 79,311 | 39,020 | +14,497 | 5,621 | 580 | 6,201 | 548 |
| Fourth, | 6,541,913 | +1,819,070 | 4,848,677 | 134,504 | 441,946 | +290,812 | 8,333 | 1,248 | 9,581 | 683 |
| Fifth, | 6,501,545 | +1,522,135 | 1,497,780 | 172,812 | 3,493,209 | +863,668 | 5,688 | 2,962 | 8,650 | 752 |
| Sixth, | 5,501,611 | —261,154 | 5,034,119 | 86,538 | 240,559 | —168,521 | 8,203 | 763 | 8,966 | 614 |
| Seventh, | 5,000,375 | —624,450 | 4,598,346 | 257,134 | 4,500 | +2,050 | 9,119 | 814 | 9,933 | 503 |
| Eighth, | 3,798,318 | —11,154 | 3,683,296 | 83,783 | 23,500 | —24,377 | 5,866 | 417 | 6,283 | 605 |
| Ninth, | 5,074,385 | —136,597 | 2,878,708 | 78,210 | 1,593,325 | +328,097 | 6,520 | 1,990 | 8,510 | 596 |
| Tenth, | 3,261,976 | +404,880 | 2,929,282 | 44,263 | 191,882 | +16,268 | 5,088 | 405 | 5,493 | 594 |
| Totals for 1897, | 54,674,452 | +4,400,807 | 40,260,127 | 1,285,284 | 8,533,291 | +1,925,111 | 73,418 | 13,136 | 88,554 | *617 |
| Totals for 1896, | 50,273,645 | —1,539,467 | 38,315,844 | ..... | 6,608,180 | —2,314,149 | ..... | ..... | 83,798 | ..... |

+ Increase 1897 compared with 1896.
— Decrease 1897 compared with 1896.
* Calculated by considering the entire region as one district.

TABLE showing total production, shipments, total production of coke in 1897 and the decrease in production compared with that of 1896, number of employes, tons of coal produced per employe, tons of coal per underground workman, kegs of powder and pounds of dynamite used, number of horses and mules, number of steam boilers in use, fatal and non-fatal accidents, fatal and non-fatal accidents per 1,000 employes, tons of coal mined per life lost and per non-fatal accident in the Bituminous Coal Mines of Pennsylvania—Continued.

| District. | Tons of coal produced per underground workman. | Kegs of powder used. | Pounds of dynamite used. | Number of horses and mules. | Number of steam boilers. | Fatal accidents. | Non-fatal accidents. | Lives lost per 1,000 employes. | Number of non-fatal accidents per 1,000 employes. | Production per life lost. | Production per non-fatal accident. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| First, | 669 | 10,308 | 897 | 601 | 164 | 22 | 89 | 2.06 | 8.34 | 293,600 | 72,575 |
| Second, | 979 | 533 | 3,167 | 1,102 | 266 | 21 | 52 | 1.71 | 4.24 | 434,990 | 175,669 |
| Third, | 605 | 25,470 | 9,167 | 532 | 68 | 10 | 24 | 1.61 | 3.87 | 340,030 | 141,679 |
| Fourth, | 785 | 37,984 | 23,896 | 905 | 118 | 8 | 22 | 0.84 | 3.34 | 817,743 | 204,436 |
| Fifth, | 1,143 | 11,611 | 11,434 | 470 | 209 | 25 | 71 | 2.89 | 8.21 | 260,062 | 91,571 |
| Sixth, | 671 | 27,199 | 7,115 | 768 | 105 | 8 | 20 | 0.89 | 2.23 | 687,701 | 275,080 |
| Seventh, | 548 | 5,433 | 605 | 667 | 150 | 22 | 58 | 2.21 | 5.84 | 227,289 | 86,213 |
| Eighth, | 648 | 22,406 | 4,866 | 593 | 93 | 7 | 29 | 1.11 | 4.62 | 542,617 | 130,976 |
| Ninth, | 778 | 11,622 | 152 | 624 | 152 | 19 | 33 | 2.23 | 3.87 | 267,073 | 153,769 |
| Tenth, | 641 | 20,171 | 12,575 | 507 | 59 | 7 | 18 | 1.27 | 3.27 | 465,996 | 181,221 |
| Totals for 1897, | *744 | 172,737 | 73,874 | 6,769 | 1,384 | 149 | 426 | *1.68 | *4.81 | *366,942 | *128,344 |
| Totals for 1896, | ..... | 147,358 | ..... | ..... | 1,285 | 180 | 382 | ..... | ..... | 279,298 | 131,606 |

* Calculated by considering the entire region as one district.

TABLE showing causes of accidents, number attributable to each cause, and total number of fatal and non-fatal accidents at the Anthracite Collieries of Pennsylvania during 1897.

| Cause of Accident. | 1st District. | | 2d district. | | 3d district. | | 4th district. | | 5th district. | | 6th district. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. |
| Explosions of gas and dust, | 1 | 6 | 4 | 12 | 5 | 18 | 9 | 54 | ..... | 11 | 7 | 11 |
| Explosions of powder, blasts, etc., | 4 | 19 | 8 | 21 | 9 | 12 | 7 | 23 | 2 | 15 | 9 | 14 |
| Falls of roof, slate, coal, etc., | 38 | 58 | 25 | 54 | 34 | 62 | 30 | 94 | 9 | 30 | 33 | 17 |
| Crushed by mine cars, machinery, etc., | 5 | 31 | 9 | 46 | 8 | 33 | 6 | 41 | 12 | 27 | 12 | 13 |
| Falling down shafts and slopes, | ..... | ..... | 1 | ..... | 1 | ..... | 1 | ..... | ..... | ..... | 1 | ..... |
| Shaft accidents from overwinding and breaking of ropes, sinking, etc., | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... | 2 | ..... |
| Miscellaneous underground accidents, | 1 | 8 | 11 | 14 | 2 | 9 | 3 | 30 | 8 | 11 | 7 | 7 |
| Miscellaneous surface accidents, | 4 | 3 | ..... | 2 | 4 | 11 | 2 | 27 | 2 | 20 | 2 | 11 |
| Totals, | 53 | 125 | 58 | 149 | 63 | 145 | 60 | 269 | 33 | 114 | 73 | 73 |
| Totals, 1896. | 51 | 134 | 39 | 161 | 108 | 209 | 73 | 225 | 42 | 91 | 67 | 99 |

TABLE showing causes of accidents, number attributable to each cause, and total number of fatal and non-fatal accidents at the Anthracite Collieries of Pennsylvania during 1897—Continued.

| Cause of Accident. | 7th District. | | 8th district. | | Totals. | | Percentages. | | Percentage, 1896. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. |
| Explosions of gas and dust, | 1 | 11 | 9 | 23 | 36 | 146 | 8.4 | 13.2 | 8.2 | 16.6 |
| Explosions of powder, blasts, etc., | 4 | 19 | 6 | 13 | 49 | 136 | 11.6 | 12.3 | 7.6 | 10. |
| Falls of roof, slate, coal, etc., | 25 | 47 | 11 | 32 | 205 | 394 | 48 2 | 35.6 | 50.6 | 34. |
| Crushed by mine cars, machinery, etc., | 7 | 20 | 6 | 23 | 65 | 234 | 15.2 | 21.2 | 18.0 | 22. |
| Falling down shafts and slopes, | 3 | 7 | 1 | ..... | 8 | 7 | 1.9 | 0.6 | 3.6 | 0.4 |
| Shaft accidents from overwinding and breaking of ropes, sinking, etc., | ..... | ..... | 5 | ..... | 9 | ..... | 2.1 | ..... | ..... | ..... |
| Miscellaneaus underground accidents, | 6 | 15 | ..... | 15 | 52 | 189 | 12.2 | 17.1 | 5.0 | 10.8 |
| Miscellaneous surface accidents, | | | | 6 | | | | | 6.8 | 6.3 |
| Totals, | 46 | 119 | 38 | 112 | 424 | 1106 | 99.6 | 100.0 | 99.8 | 100.1 |
| Totals, 1896, | 76 | 106 | 46 | 140 | 502 | 1,165 | ..... | ..... | ..... | ..... |

TABLE showing cause of accidents, the number and percentage attributable to each cause, and the total number of fatal and non-fatal accidents at the Bituminous Coal Mines in Pennsylvania during 1897.

| Cause of Accident. | 1st District. | | 2d district. | | 3d district. | | 4th district. | | 5th district. | | 6th district. | | 7th district. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. |
| Explosions of gas and dust, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 8 | ..... | ..... | ..... | 4 |
| Explosions of powder, blasts, etc., | ..... | 1 | ..... | 3 | ..... | 1 | ..... | 5 | ..... | ..... | ..... | 1 | ..... | 1 |
| Falls of roof, slate, coal, etc., | 16 | 47 | 15 | 32 | 6 | 11 | 6 | 13 | 17 | 31 | 7 | 10 | 20 | 39 |
| Crushed by mine cars, machinery, etc., | 6 | 23 | 3 | 14 | 1 | 9 | 2 | 14 | 3 | 28 | 1 | 5 | 2 | 6 |
| Falling down shafts and slopes, | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Shaft accidents from overwinding and breaking of ropes, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| Miscellaneous underground accidents, | ..... | 18 | 1 | 2 | ..... | 1 | ..... | ..... | ..... | 2 | ..... | ..... | ..... | 3 |
| Miscellaneous surface accidents, | ..... | ..... | 1 | 1 | 3 | 2 | ..... | ..... | 1 | 2 | ..... | 2 | ..... | 5 |
| Totals, 1897, | 22 | 89 | 21 | 52 | 10 | 24 | 8 | 32 | 25 | 71 | 8 | 20 | 22 | 58 |
| Totals, 1896, | 44 | 107 | 26 | 31 | 3 | 17 | 11 | 16 | 18 | 48 | 27 | 19 | 22 | 49 |

TABLE showing cause of accidents, the number and percentage attributable to each cause, and the total number of fatal and non-fatal accidents at the Bituminous Coal Mines in Pennnsylvania during 1897—Continued.

| Cause of Accident. | 8th District. | | 9th District. | | 10th District. | | Totals. | | Percentages. | | Percentage, 1896. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. | Fatal. | Non-fatal. |
| Explosions of gas and dust, | ..... | ..... | ..... | 1 | ..... | ..... | 2 | 13 | 1.3 | 3.0 | 12.2 | 6.28 |
| Explosions of powder, blasts, etc., | 1 | 2 | ..... | ..... | ..... | ..... | 3 | 14 | 2.0 | 3.3 | 0.55 | 2.33 |
| Falls of roof, slate, coal, etc., | 3 | 14 | 15 | 23 | 6 | 14 | 111 | 234 | 74.4 | 54.9 | 62.8 | 56.5 |
| Crushed by mine cars, machinery, etc., | 1 | 9 | 2 | 7 | 1 | 4 | 22 | 119 | 14.8 | 27.9 | 16.67 | 26.44 |
| Falling down shafts and slopes, | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 0.7 | ..... | ..... | ..... |
| Shaft accidents from overwinding and breaking of ropes, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 0.5 | ..... | ..... |
| Miscellaneous underground accidents, | 2 | 4 | 2 | 2 | ..... | ..... | 5 | 32 | 3.4 | 7.5 | 5. | 7.33 |
| Miscellaneous surface accidents, | ..... | ..... | ..... | ..... | ..... | ..... | 5 | 12 | 3 4 | 2.8 | 2.78 | 1.3 |
| Totals, 1897, | 7 | 29 | 19 | 33 | 7 | 18 | 149 | 426 | 100. | 100. | 100. | ..... |
| Totals, 1896, | 6 | 36 | 19 | 41 | 4 | 18 | 180 | 382 | ..... | ..... | ..... | ..... |

PRODUCTION of coal and coke in tons, number of employes, number of fatal and non-fatal accidents.

| Districts. | Coal. | | | | | Coke. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1897. | 1896. | 1895. | 1894. | 1893. | 1897. | 1896. | 1895. | 1894. | 1893. |
| Anthracite. | | | | | | | | | | |
| First, | 6,249,833 | 6,217,447 | 6,510,817 | 5,907,331 | 6,202,131 | | | | | |
| Second, | 5,985,630 | 5,895,669 | 6,189,495 | 5,674,539 | 5,936,475 | | | | | |
| Third, | 5,875,823 | 5,714,929 | 6,213,834 | 5,541,952 | 5,629,914 | | | | | |
| Fourth, | 7,457,418 | 8,017,852 | 8,066,539 | 7,162,961 | 8,065,768 | | | | | |
| Fifth, | 5,487,550 | 5,872,427 | 6,590,966 | 6,132,627 | 6,239,058 | | | | | |
| Sixth, | 6,475,930 | 6,521,510 | 7,161,898 | 6,340,631 | 6,674,807 | | | | | |
| Seventh, | 5,108,948 | 5,594,649 | 6,184,512 | 5,404,823 | 5,288,892 | | | | | |
| Eighth, | 4,306,222 | 4,239,847 | 3,925,013 | 3,331,315 | 3,142,504 | | | | | |
| Total gross tons, | *46,947,354 | 48,074,330 | 50,847,104 | 45,506,179 | 47,179,553 | | | | | |
| Bituminous. | | | | | | | | | | |
| First, | 6,459,200 | 6,697,601 | 5,539,951 | 5,282,181 | 4,876,307 | | | | | |
| Second, | 9,134,797 | 7,364,771 | 9,128,787 | 6,424,633 | 6,635,908 | 2,505,350 | 1,902,643 | 2,569,085 | 1,635,243 | 1,511,871 |
| Third, | 3,400,302 | 3,243,851 | 3,254,947 | 2,641,120 | 3,224,130 | 39,020 | 24,523 | ..... | 3,488 | 27,039 |
| Fourth, | 6,541,943 | 5,762,765 | 5,294,351 | 4,296,596 | 4,856,122 | 441,946 | 409,080 | 306,198 | 242,810 | 289,844 |
| Fifth, | 6,501,545 | 4,979,410 | 6,423,802 | 3,908,348 | 3,629,559 | 3,493,209 | 2,629,541 | 3,756,487 | 2,264,971 | 2,092,993 |
| Sixth, | 5,501,611 | 4,722,873 | 4,406,750 | 2,981,088 | 3,140,284 | 240,559 | 151,134 | 133,992 | 41,662 | 109,348 |
| Seventh, | 5,000,375 | 5,624,825 | 4,693,508 | 2,438,875 | 4,435,416 | 4,500 | 7,450 | 5,000 | 6,000 | 3,000 |
| Eighth, | 3,798,138 | 3,809,472 | 4,709,932 | 3,454,078 | 5,043,078 | 23,500 | 47,877 | 24,140 | 13,302 | 50,857 |
| Ninth, | 5,074,385 | 5,210,992 | 5,652,813 | 4,690,811 | 8,814,178 | 1,593,325 | 1,265,318 | 1,985,206 | 1,473,982 | 1,240,863 |
| Tenth, | 3,261,976 | 2,857,096 | 2,708,271 | 1,882,530 | 2,772,116 | 191,882 | 175,614 | 42,221 | 147,786 | 224,181 |
| Total, | 54,674,272 | 50,273,656 | 51,813,112 | 39,800,210 | 43,421,898 | 8,533,191 | 6,613,180 | 8,922,329 | 5,729,244 | 5,549,296 |
| Grand total, | †107,255,308 | 98,347,986 | 102,660,216 | 85,306,389 | 90,601,461 | 8,533,191 | 6,613,180 | 8,922,329 | 5,729,244 | 5,549,296 |

* Net tons, 52,581,036.
† Net tons.

PRODUCTION of coal and coke in tons, number of employes, number of fatal and non-fatal accidents—Continued.

| Districts. | Number of Employes. | | | | | Fatal Accidents. | | | | | Non-Fatal Accidents. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1897. | 1896. | 1895. | 1894. | 1893. | 1897. | 1896. | 1895. | 1894. | 1893. | 1897. | 1896. | 1895. | 1894. | 1893. |
| **Anthracite.** | | | | | | | | | | | | | | | |
| First, | 18,066 | 17,604 | 16,272 | 16,014 | 15,637 | 53 | 51 | 39 | 47 | 57 | 125 | 134 | 121 | 98 | 96 |
| Second, | 16,578 | 16,353 | 16,269 | 15,627 | 14,429 | 58 | 39 | 34 | 41 | 35 | 149 | 161 | 192 | 141 | 173 |
| Third, | 17,926 | 15,577 | 17,413 | 16,965 | 15,779 | 63 | 108 | 68 | 51 | 64 | 145 | 209 | 167 | 148 | 178 |
| Fourth, | 25,650 | 26,059 | 24,669 | 22,764 | 22,790 | 60 | 73 | 74 | 71 | 47 | 269 | 225 | 221 | 229 | 221 |
| Fifth, | 17,119 | 17,568 | 18,467 | 18,361 | 17,540 | 33 | 42 | 52 | 58 | 58 | 114 | 91 | 102 | 95 | 99 |
| Sixth, | 21,056 | 20,979 | 19,810 | 20,109 | 21,872 | 73 | 67 | 59 | 73 | 60 | 73 | 99 | 52 | 94 | 139 |
| Seventh, | 19,670 | 20,195 | 19,399 | 19,121 | 19,197 | 46 | 76 | 59 | 78 | 77 | 119 | 106 | 114 | 76 | 119 |
| Eighth, | 13,492 | 13,335 | 11,306 | 10,734 | 10,777 | 38 | 46 | 35 | 20 | 27 | 112 | 140 | 106 | 40 | 44 |
| | 149,557 | 149,670 | 143,605 | 139,965 | 138,021 | 424 | 502 | 420 | 439 | 445 | 1,106 | 1,169 | 1,075 | 919 | 1,069 |
| **Bituminous.** | | | | | | | | | | | | | | | |
| First, | 10,665 | 10,977 | 11,086 | 11,175 | 10,114 | 22 | 44 | 25 | 25 | 25 | 89 | 123 | 66 | 101 | 77 |
| Second, | 12,272 | 11,040 | 11,195 | 12,148 | 10,993 | 21 | 26 | 32 | 18 | 14 | 52 | 31 | 55 | 39 | 28 |
| Third, | 6,131 | 5,964 | 6,211 | 6,734 | 6,112 | 10 | 3 | 7 | 9 | 3 | 24 | 17 | 23 | 12 | 25 |
| Fourth, | 9,381 | 8,858 | 8,578 | 9,036 | 8,293 | 8 | 26 | 14 | 11 | 5 | 32 | 19 | 32 | 20 | 22 |
| Fifth, | 8,650 | 7,524 | 8,389 | 7,619 | 6,663 | 25 | 18 | 13 | 13 | 12 | 71 | 48 | 70 | 47 | 44 |
| Sixth, | 8,966 | 8,010 | 7,081 | 6,944 | 6,353 | 8 | 11 | 8 | 13 | 12 | 20 | 16 | 19 | 17 | 15 |
| Seventh, | 9,933 | 10,564 | 9,838 | 9,844 | 9,398 | 22 | 22 | 18 | 9 | 21 | 58 | 49 | 55 | 47 | 44 |
| Eighth, | 6,283 | 7,197 | 8,071 | 8,160 | 9,423 | 7 | 6 | 13 | 13 | 20 | 29 | 36 | 34 | 17 | 31 |
| Ninth, | 8,509 | 8,273 | 8,557 | 9,279 | 8,754 | 19 | 19 | 20 | 11 | 15 | 33 | 41 | 40 | 40 | 35 |
| Tenth, | 5,493 | 5,389 | 5,098 | 5,247 | 5,697 | 7 | 4 | 5 | 2 | 4 | 18 | 18 | 25 | 17 | 25 |
| Total, | 86,483 | 83,796 | 84,904 | 86,177 | 81,800 | 149 | 179 | 155 | 124 | 131 | 426 | 398 | 419 | 357 | 346 |
| Grand total, | 236,040 | 233,460 | 228,509 | 225,872 | 219,821 | 573 | 681 | 575 | 563 | 586 | 1,532 | 1,567 | 1,494 | 1,276 | 1,415 |

TABLE showing production of anthracite coal and number of employes in and about the mines by counties.

| Counties. | Tons of Coal. | | | | | Number of Employes. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1897. | 1896. | 1895. | 1894. | 1893. | 1897. | 1896. | 1895. | 1894. | 1893. |
| Carbon | 1,327,235 | 1,488,550 | 1,577,146 | 1,589,395 | 1,510,289 | 4,748 | 4,153 | 4,382 | 5,391 | 4,410 |
| Columbia | 481,453 | 443,330 | 493,042 | 510,537 | 741,990 | 1,909 | 2,074 | 1,756 | 2,011 | 2,654 |
| Dauphin | 662,842 | 702,335 | 712,856 | 699,607 | 640,723 | 2,072 | 1,988 | 1,985 | 2,092 | 2,094 |
| Lackawanna | 11,946,871 | 11,638,479 | 11,859,382 | 11,170,382 | 11,667,550 | 33,892 | 32,771 | 30,367 | 30,629 | 29,021 |
| Luzerne | 17,141,809 | 17,964,900 | 19,143,101 | 17,243,928 | 18,253,144 | 55,138 | 56,717 | 55,798 | 52,994 | 51,392 |
| Northumberland | 3,774,667 | 4,117,569 | 4,573,144 | 3,893,660 | 3,731,404 | 15,139 | 14,787 | 14,522 | 13,870 | 13 487 |
| Schuylkill | 10,971,943 | 11,092,772 | 11,495,388 | 9,985,092 | 9,992,085 | 35,098 | 35,660 | 32,292 | 31,696 | 33,611 |
| Sullivan | 164,046 | 151,758 | 152,141 | ..... | 70,418 | 327 | 334 | 312 | ..... | 307 |
| Susquehanna | 476,488 | 474,637 | 840,904 | 413,578 | 571,956 | 1,234 | 1,186 | 2,191 | 1,012 | 1,045 |
| Wayne | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Total | *46,947,354 | 48,074,330 | 50,847,104 | 45,506,179 | 47,179,563 | 149,557 | 149,670 | 143,605 | 139,695 | 138,021 |

* Gross tons.

C—10—97

TABLE showing production of bituminous coal and coke, and number of employes in and about the mines by counties.

| Counties. | Tons of Coal. | | | | |
|---|---|---|---|---|---|
| | 1897. | 1896. | 1895. | 1894. | 1893. |
| Allegheny | 7,122,227 | 7,858,414 | 7,146,699 | 6,415,611 | 6 894,510 |
| Armstrong | 570,343 | 566,771 | 649,174 | 577,928 | 300,222 |
| Beaver | 183,149 | 236,587 | 267,863 | 135,752 | 151,346 |
| Bedford | 353,489 | 319,575 | 430,804 | 288,753 | 490,416 |
| Blair | 317,535 | 281,237 | 351,299 | 269,211 | 170,144 |
| Bradford | 41,588 | 52,467 | 57,711 | 25,474 | 42,739 |
| Butler | 227,439 | 223,015 | 220,895 | 134,334 | 160,443 |
| Cambria | 5,571,721 | 4,899,048 | 4,461,629 | 3,005,261 | 3,377,459 |
| Cameron | | | | | |
| Centre | 406,482 | 445,268 | 303,813 | 174,548 | 1,259,351 |
| Clarion | 381,736 | 364,782 | 428,675 | 401,088 | 772,622 |
| Clearfield | 5,392,472 | 4,889,793 | 5,442,299 | 4,156,310 | 6,081,324 |
| Clinton | 157,338 | 134,568 | 94,692 | 100,000 | 94,582 |
| Elk | 765,110 | 799,669 | 602,428 | 515,070 | 617,878 |
| Fayette | 10,112,944 | 8,562,571 | 10,124,541 | 6,684,153 | 6,105,845 |
| Greene | | | | | |
| Huntingdon | 285,676 | 333,935 | 289,092 | 187,070 | 291,739 |
| Indiana | 532,989 | 392,029 | 483,795 | 406,878 | 359,170 |
| Jefferson | 5,309,050 | 4,717,363 | 4,528,774 | 3,467,481 | 3,072,297 |
| Lawrence | 196,506 | 198,666 | 227,599 | 135,411 | 197,277 |
| Lycoming | 91,735 | 82,730 | 83,830 | 80,160 | 53,192 |
| McKean | 47,022 | 56,989 | 38,207 | 19,844 | 19,463 |
| Mercer | 426,302 | 502,317 | 502,945 | 297,662 | 486,049 |
| Potter | | | | | |
| Somerset | 1,166,327 | 621,980 | 521,995 | 434,188 | 483,770 |
| Tioga | 925,893 | 800,658 | 781,814 | 684,627 | 942,252 |
| Washington | 3,761,234 | 4,366,518 | 3,410,694 | 3,373,778 | 3,414,444 |
| Westmoreland | 10,127,965 | 8,566,705 | 10,325,245 | 7,739,080 | 7,583,346 |
| Total | 54,674,272 | 50,273,656 | 51,813,112 | 39,800,210 | 43,421,898 |

In 1894 Sullivan county produced 90,538 tons coal and had 337 employes; it is now in anthracite region.

TABLE showing production of bituminous coal and coke, and number of employes in and about the mines by counties—Continued.

| Counties. | Tons of Coke. | | | | | Number of Employes. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1897. | 1889. | 1895. | 1894. | 1893. | 1897. | 1889. | 1895. | 1894. | 1893. |
| Allegheny | 4,500 | 250 | 5,000 | 6,000 | 3,000 | 14,395 | 14,732 | 15,022 | 15,345 | 14,351 |
| Armstrong | ..... | ..... | ..... | ..... | 6,556 | 971 | 1,100 | 1,139 | 1,204 | 632 |
| Beaver | ..... | ..... | ..... | 80 | 100 | 417 | 608 | 592 | 455 | 293 |
| Bedford | ..... | 39,200 | 40,420 | 6,016 | 3,000 | 803 | 831 | 863 | 845 | 967 |
| Blair | 36,904 | 36,943 | 28,706 | 8,200 | 39,361 | 516 | 523 | 788 | 707 | 536 |
| Bradford | 263,474 | 165,435 | 142,047 | 42,747 | 122,219 | 127 | 115 | 109 | 90 | 83 |
| Butler | ..... | ..... | ..... | ..... | ..... | 590 | 500 | 489 | 461 | 328 |
| Cambria | ..... | ..... | ..... | ..... | ..... | 8,918 | 8,237 | 7,219 | 7,048 | 6,691 |
| Cameron | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Centre | ..... | ..... | ..... | 13,069 | 83,203 | 664 | 773 | 632 | 647 | 2,416 |
| Clarion | ..... | ..... | ..... | ..... | ..... | 1,185 | 828 | 842 | 1,021 | 1,626 |
| Clearfield | 191,049 | 157,756 | 117,830 | 45,574 | 131,360 | 9,016 | 8,989 | 9,416 | 9,733 | 10,933 |
| Clinton | ..... | ..... | ..... | ..... | ..... | 236 | 211 | 198 | 151 | 180 |
| Elk | ..... | ..... | ..... | 8,257 | 29,421 | 1,245 | 1,287 | 1,093 | 1,297 | 1,332 |
| Fayette | 4,851,918 | 3,692,397 | 5,339,887 | 3,426,791 | 3,011,054 | 13,892 | 12,250 | 13,387 | 12,566 | 11,185 |
| Greene | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Huntingdon | ..... | ..... | ..... | ..... | 29,103 | 593 | 701 | 630 | 689 | 630 |
| Indiana | 16,330 | 22,798 | 7,172 | 5,250 | 33,620 | 675 | 800 | 707 | 760 | 873 |
| Jefferson | 445,013 | 407,865 | 276,578 | 219,635 | 255,473 | 6,039 | 5,972 | 6,166 | 6,342 | 4,234 |
| Lawrence | ..... | ..... | ..... | ..... | ..... | 558 | 424 | 503 | 494 | 460 |
| Lycoming | ..... | ..... | ..... | ..... | ..... | 190 | 166 | 164 | 166 | 118 |
| McKean | ..... | ..... | ..... | ..... | ..... | 95 | 94 | 86 | 42 | 39 |
| Mercer | ..... | ..... | ..... | ..... | ..... | 1,058 | 1,022 | 1,118 | 1,137 | 1,010 |
| Potter | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Somerset | ..... | 9,086 | 6,862 | 5,027 | 9,953 | 1,499 | 860 | 618 | 865 | 677 |
| Tioga | 476 | 1,032 | 976 | 450 | 984 | 2,089 | 1,988 | 2,085 | 2,207 | 2,230 |
| Washington | ..... | 7,200 | ..... | ..... | ..... | 6,532 | 7,305 | 6,835 | 6,998 | 7,110 |
| Westmoreland | 2,723,636 | 2,073,291 | 2,956,908 | 1,937,128 | 1,700,889 | 14,270 | 13,389 | 14,203 | 14,570 | 13,016 |
| Total | 8,533,291 | 6,613,180 | 8,922,329 | 5,729,244 | 5,549,296 | 86,483 | 83,796 | 84,904 | 86,177 | 81,800 |

No. 2. Culm-Flushing Plant at the Black Diamond Colliery.

This report is, perhaps, not so complete as it should be, but with the facilities afforded to perform the labor assigned to the Bureau, it is the best that could be done, and had it not been for the kindness of Hon. James W. Latta, Secretary of Internal Affairs, in assigning Mr. Thomas Wilson to prepare the Inspector's reports for publication, to whom all credit should be given, I do not see how that work could have been done.

The following papers on the method and cost of flushing culm into anthracite mines, I have copied by permission from the Anthracite Coal Operators' Association letter, which I believe will be read with profit by all who are interested in mining methods.

---

## THE METHOD AND COST OF FLUSHING CULM INTO ANTHRACITE MINES.

At the meeting of the association held October 13th, 1897, a committee of three was appointed to investigate this subject and report at its earliest convenience. At the meeting, January 12th, 1898, Mr. Haddock, chairman of the committee, presented the following report, which had been prepared at his request by Mr. James B. Davies, superintendent of Mr. Haddock's "Black Diamond" and "Dodson" collieries, near Wilkesbarre. Before reading the report the chairman acknowledged his obligation to the Hon. John J. Shonk, for the suggestions looking to the flushing of culm into the mines, which had been so successfully carried out under the direction of Mr. Davies.

Flushing Culm at the "Dodson" and "Black Diamond" Collieries.

Referring to your request for a full report of our mode of filling the mines with culm, the expenses, and suggestions for any improvement that might help to make the present system more successful, I submit to you the following, which I trust may cover the ground you desire.

### Beginning of Flushing.

In January, 1891, we built a small portable washer in order to experiment in cleaning the Dodson culm bank. This was replaced by a larger and more permanent one, which is now our jig house. On running our culm cleaners we found that getting rid of the dirty water was a problem not easily solved. The law was against us and would not allow us to run it into the Susquehanna river, so we made several sumps on the top of the culm bank and pumped this water into them, in the hope that it would filter through and leave the impurities behind. This it did, but the mud filled our sumps faster

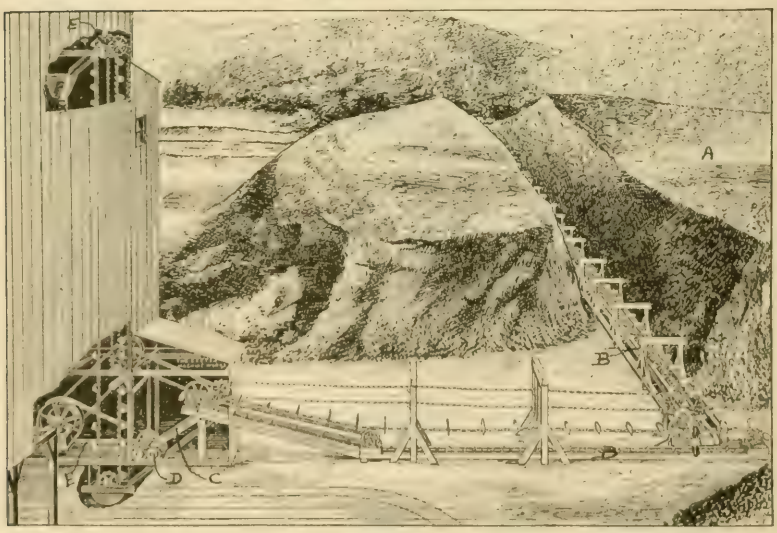
than we could dig them, so it occurred to us that we might try the old workings in the mine. A six-inch pipe was laid from the plant down the shaft, which is 400 feet below the surface; thence from the bottom of the shaft to an old chamber below its level. We were soon convinced that this was a success. Then another question came forward: If the water of the washers could be disposed of into the old workings, why not the breaker culm also? A practical answer to this was secured by making the new connection. In the spring of 1891 the trial was made with the culm cleaner, and on November 20th of the same year the connection was made with the coal breaker. So this system was begun six years ago last March and completed the six years on the 20th of this month. After filling several acres at the Dodson mine, the same system of flushing was established at the Black Diamond mine. When this system of flushing was completed at both places, different operators examined it, and then applied it to their own collieries with success.

CULM PLANT FOR FLUSHING MINES

AS IN USE BY

PLYMOUTH COAL Co

PLYMOUTH PA




No. 1. Culm-Flushing Plant at the Dodson Colliery.

The System.

1. Outside.—A small tank is set under the chute that takes the dirt from the buckwheat screen. The dirt and water go into this tank together and enter a pipe down the shaft into the mine.

2. Inside.—This pipe is continued along the main gangways and airways from bottom of the shaft and branch turn-off by means of

No. 3. Culm Bank at the Black Diamond Colliery.

three ways and elbows into the different chambers. At the bottom or the entrance of these chambers, a wall is built—well timbered on the gangway side, to dam the dirt that comes from the pipe. If the pitch of strata is light, the culm pipe must be brought down near this wall and the whole length of the chamber. The mouth of the pipe is raised against the roof in order to completely fill this section. When this is done, the contents of the main culm pipe must be turned into another chamber while the men are taking so many lengths of pipe off in the first chamber to give it another section to fill. When this is ready, they must do the same with chamber No. 2. The pipe goes into the chambers in, or as near as possible to, the face, and continues to fill them thus, upwards. It would be well to notice here, that the lighter the grade the more expensive the work The pipe must be put in nearly the whole length of the chambers and must be taken out as they fill up. There is a saving in pipe and labor where the pitch is heavy enough for water to carry the dirt—such a pitch is exceptional in the Wyoming Valley.

## The Pipe.

1. Size of Pipe.—At the Dodson mines we use 6-inch pipe from the culm plant down the shaft, along the Bennett gangway and Bennett vein, and down the Rock slope to the Ross vein, but in branches that turn to different chambers we use 4-inch and 5-inch pipes. At the Black Diamond mines we use two lines of pipe—one 3-inch line, which takes the breaker culm into the mines, and the other, 4-inch, which takes the bank culm to different points in the same veins. At Dodson mines the bank culm and the breaker culm enter the mines through the same pipe. We intend to do this at Black Diamond.

2. Nature of Pipe.—We have tried three different kinds of pipe—wrought iron, steel and cast iron pipes. The first is the best. The second is too soft and will soon wear out, while the third is harder than either, but the friction of the culm in flowing through makes it very rough. On account of this roughness the friction becomes very great and the casting is soon eaten out.

3. The Wear of Pipes.—The wear of the pipe used depends on the nature of the water and the material that is to be treated.

a. With fresh water and small culm from the buckwheat screen, it will last some eighteen months.

b. When carrying bank culm from dust to pea coal and some chestnut, it will last say nine months.

c. When this is mixed with ashes, it will not last more than six months.

d. When small culm from the buckwheat screen and bank culm run together through the same pipe in the ratio of two small sizes to one large, the pipe will last some twelve months.

### Best Sized Material.

1. The smaller the material the better. The pillars in the mines are full of cracks and crevices—sometimes these run half way and often through the pillars. This depends on the nature of the coal and the size of the pillars. If these pillars are to be made solid, the water must carry very small particles of culm, so that they can pass to the farthest end of these crevices and fill the pillar.

2. The smaller the material the less water will be required to carry it through. The reason for this is obvious. The larger the material the more space between the particles and the quicker the water will travel—it will travel faster than its load. But when its load is ground from rice size to dust, it is easier for the water to take it along than to penetrate through and leave it behind.

3. Also, when small material comes in contact with the pipe, it creates little friction and the pipe will wear better, which is just the reverse in carrying the larger sizes.

### Blocking the Pipe.

A great many think that our culm pipe is a great siphon, with one end in the breaker and the other in the old workings, depositing its contents in peace. This is a great mistake. It is quite a problem to run it from one place to another without interrupting the stream of culm and prevent it blocking from the face of the mines to the breaker. When this happens the culm must be taken care of in the usual manner by taking it out to the bank until the pipe is cleaned out. This will sometimes take half a day—a day, and sometimes two days, when a great many lengths of pipe need changing. This blocking seldom happens with the pipe that carries the small material from the buckwheat screen, but it will happen to the culm bank plant pipe about three times a month; and not so often in the pipe that carries the breaker culm and bank culm together. This also proves the importance of having enough good crushers to grind the culm to the proper size.

### Water.

Among the numerous questions in regard to the culm filling, the most important are those pertaining to the water.

1. Kind of water.—By all means it should be fresh. Dodson gets its water from the Susquehanna, and the Black Diamond from Toby's creek. Mining water was tried at both places, but proved injurious to both pipes and pumps. Whatever may be the original percentage of sulphur in this mine water, it is increased two-fold when it returns after washing the culm down the mines.

2. Amount of Water.—This depends on:

a. Distance.—The Dodson culm pipe is 2,500 feet long, with its mouth near the bottom of the Ross slope. One and one-half pounds

of water will deposit one pound of breaker culm at this point. Two to two and one-half pounds will deposit one pound of bank culm in the same place. Dodson breaker and culm bank is flushed through same pipe. Black Diamond breaker culm pipe is 2,924 feet long. One and one-half pounds of water will deposit one pound of breaker culm at this point. Black Diamond culm pipe is 5,624 feet long. Two to two and one-half pounds of water will deposit one pound of bank culm at this place.

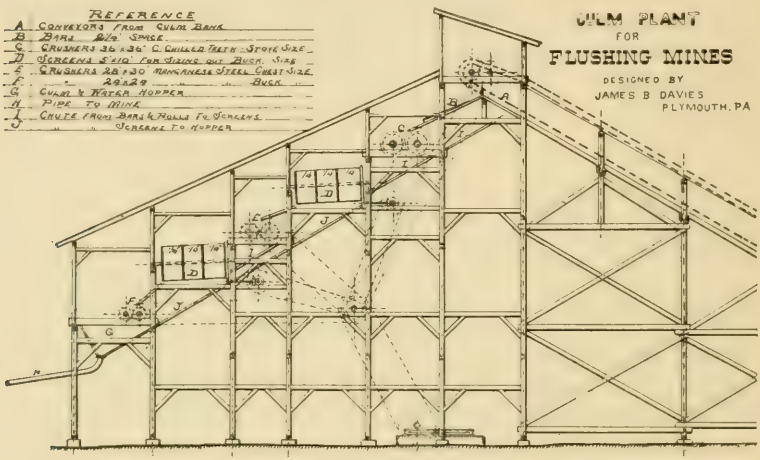
b. When the pipe is changed from running into the slopes or anywhere under the shaft level to the hill, the water must be increased as its altitude above shaft level increases. When the Dodson culm pipe was running west some 1,500 feet, then up hill three hundred, until it became some 90 feet above the level of the shaft bottom—then it ran east some 700 feet to discharge its contents into the old cave, it took some six pounds of water for one pound of culm—mixed, large and small.

c. We cannot claim that the above is scientifically correct, on account of the impossibility of keeping the flow of dirt running as steadily as the flow of water. The flow of dirt even from the screen is not continuous, but comes in rushes—even when the dumping of coal is regular, for coal comes to the screen in irregular quantities like into the dump. Besides, there are numerous stops during the day in the breaker and the shaft. Whatever the length of these stops may be, there are the same lengths of clean water in the dirt pipe. If the stop happens to be three, five, ten or twenty minutes, more or less, the quantity of water pumped in that time goes to waste. The pump cannot be stopped until all the culm is out, and that will take some twenty minutes at either of our mines. This proves that no two collieries can reach the same results, for their conditions and irregularities differ very materially, so the waste water cannot be measured. The rule of the mines is, to give as little water as possible, but enough to keep the culm from blocking. When it happens to block, it is usual to increase the water a little more than is necessary. By being too careful against a second blocking, we become too liberal with the water.

### Help in the time of Squeeze.

Props and cogs as supports are not to be compared to flushing. The props soon break. The roof must lower many feet in a thick vein before the cog will begin to feel its load. By this time the piller is crushed and its strength is gone. But flushing gives its support to the piller as soon as it comes in contact with it. Even when the piller is far gone and no one dares to venture near the place with a prop, the water will carry its load and deposit the dirt around the pillar and into all its crevices until it becomes whole, in spite of the pressure upon it. The grunting of the pillar ceases as

the dirt rises towards the roof. When the roof is reached and the pillar is buried, its prayer for help ceases and the pressure which was upon it goes for weaker pillars, but when so many others are braced up in the same way, they will stop the squeeze even if the roof must be broken to the surface. This they did at Dodson, and the shaft (400 feet) was saved. It is quite interesting to know how much this culm filling will "give" under a great pressure. Some say that such pressure will reduce it to half its thickness. In this case the roof will press the culm down to a smaller space than the coal occupied before it was mined. Others say that a great pressure will reduce the culm to one-third. In this case it will reduce it to the


REFERENCE
A Conveyors from Culm Bank
B Bars 8½ Space
C Crushers 36 x 36 C. Chilled Teeth Stone Size
D Screens 5'x10' for Sizing out Buck. Size
E Crushers 28 x 30 Manganese Steel Chest Size
F " 22x29 " " Buck. "
G Culm & Water Hopper
H Pipe to Mine
I Chute from Bars & Holes to Screens
J " " Screens to Hopper
CULM PLANT
FOR
FLUSHING MINES
DESIGNED BY
JAMES B DAVIES
PLYMOUTH, PA

No. 4. Suggestion for a Culm-Flushing Plant.

same space as the coal occupied before. This cannot be correct. There is no formula by which we can calculate the help that flushing furnishes the pillar in the time of a general squeeze. We have asked this question of mining engineers, but they seem to be at sea like ourselves—in the same waves and quite as far from shore, in regard to the answer. It seems that experience only can throw light on the question. In any event it has proved beyond any doubt that it is the best help for pillars that was ever invented. In a test we made at Black Diamond, by sawing out a cubic foot of anthracite coal—grinding the same into rice and dust and flushing it into a box 12 inches by 12 inches by 17½ inches, that it filled it completely. Thus the expansion is 5½ inches. If so many chambers 17½ feet high were flushed with the same sized material and density, the roof could not press the culm lower than 5½ feet, for it would be as hard as the coal at this point. But the roof cannot drop this 5½ feet, for the coal in the pillars must be considered. In a general squeeze, 5½ feet of the top of each pillar will claim the same space.

so the half of it must take its place on top or in the culm and the pressure cannot drive the roof lower than 2¾ feet, for at this point the solidity underneath it, equals the solidity of the coal itself. We assume in the above that the pillars represent half the coal. In case they represent a third only, the roof of a chamber 17½ feet high will drop some 3 feet 8 inches. The following facts should be considered in connection with the above:

1. Culm cannot be filled as closely in the mines as in the above mentioned box, but there is a margin as may be seen in No. 2.

2. No squeeze ever compressed the refuse to the density of coal.

3. The waste of mines is supposed to fill only a portion of the workings that have been made in mining, especially if the mines have been in operation some time before the flushing begins.

4. Besides, pitch and location of openings have their advantages and disadvantages in flushing.

## Number of Acres Flushed.

The number of acres flushed in our two mines—Dodson and Black Diamond— as computed by our engineers, Messrs. Aikman & Auman, is as follows:

| | | Area of space filled to thickness of vein. Acres. | Area of space covered one foot in thickness. Acres. |
|---|---|---|---|
| Dodson. | Old Bennett (Hillman) vein, ..... | 1.67 | 8.68 |
| | Bennett and Baltimore vein, ..... | 17.23 | 147.66 |
| | Ross vein, ..... | 24.02 | 141.74 |
| | | 42.92 | 298.08 |
| Black Diamond. | Ross vein,..... | 14.43 | 121.40 |
| | Red Ash vein, ..... | 17.03 | 153.21 |
| | | 31.46 | 274.61 |

## Quantity of Coal Saved.

There is no formula by which we can calculate the quantity of coal that can be saved per acre by flushing. The conclusions are out of the reach of any theory. It is a matter of judgment and calculation which vary, of course, according to the changing conditions. However, the judges in this case, like many others, must be the very best class of miners—men of experience in squeezes, caves and explosions.

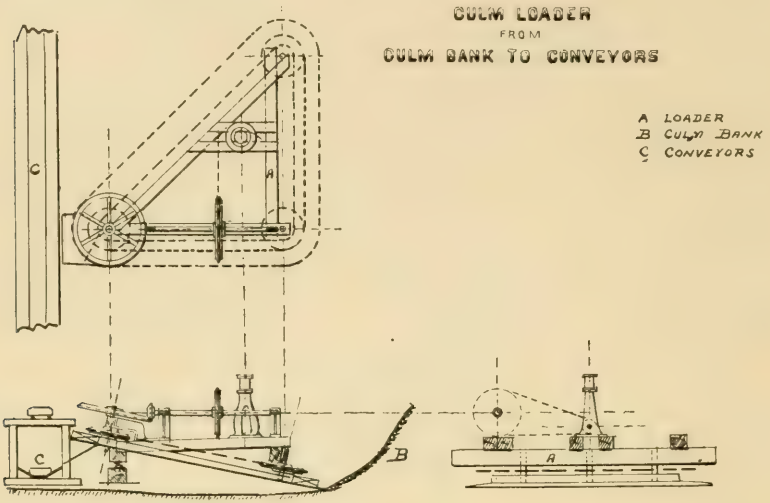
We are of the opinion that their conclusions would be as follows:

1. That when mining under some 400 feet of strata, flushing will save the company one-fifth (in the Bennett vein).

2. When mining 200 feet deeper, in the Ross, it will save a sixth.

3. In the Red Ash, when some 700 feet below the surface, they might say that flushing will save a seventh. The difference in the amount saved, arises from the fact that the Bennett is under less

weight and makes stiffer and better pillars than either the Ross or the Red Ash. The best pillar is the one that will stay as it was cut out until it is disturbed by a squeeze. The Ross pillars at Dodson and the Red Ash at Black Diamond will not do this. It is their




No. 5. Suggestion for Feeding a Conveyor Line.

nature to break down and fill up the empty chambers. Although the Red Ash pillar in Plymouth is nearly three times as high as that of the Ross, the nature of the coal makes it a tougher and a better pillar. Atmospheric changes do not affect this vein the same as they do the Ross. The Red Ash, above Kingston, is worse for a pillar than even the Ross at Plymouth. There is from 8 inches to 2 feet of loose stuff between the vein and the roof at Black Diamond, which runs off the pillar until it becomes bare, like a prop without a cap piece, for so many feet each side. This loose stuff decreases our average very much and increases the dirt, besides making a pillar valueless. The owner of ten acres of Red Ash from Plymouth to Nanticoke is better off than the owner of twenty acres of Red Ash from Plymouth Junction to Pittston. The percentage of coal saved by flushing depends very much on the size of the property also, for when two veins are less than seventy feet apart, it is necessary sometimes to stop the party in the upper or lower vein until one is worked or flushed through. Even in the same vein it is necessary to remove miners when their chambers are not half done until the surrounding chambers are flushed. But this cannot be done unless the property is large enough to allow the required number of chambers for such changes. In some cases a whole gangway should be stopped in order to flush in it a number of chambers to stand in place of so many blocks of coal and

be in readiness by the time the whole of the chamber comes through to the gangway above. But this is impossible unless the size of the property will allow it.

### The Question of Fire.

There has been an apprehension that culm, after being filled tight in old chambers, would take fire either from natural combustion, explosions or otherwise. This is out of the question.

1. Culm with the present preparation is lifeless on account of the heavy percentage of slate and slate dust that is mixed with it.

2. This, when set by the water becomes close and hard—so much so, that it is an impossibility for the fire to penetrate it on account of its being dead and without crevices for air to feed the fire.

3. The nature of the material, thus set, is better to put fire out in the mines than either water or steam. Water runs away unless the mines are flooded above the fire level. Indeed, three times we have had mines flooded hundreds of feet above the fire and pumped out three times, and the fire is there still. If this could be surrounded by so many flushed chambers its life would soon cease. Steam has its disadvantages, for it is a matter of impossibility to confine it thoroughly, and the heat ruins the mines by bringing down the roof. This then gets on fire—a fire that is more difficult to extinguish than the one in the coal, for it is fiercer and ascends out of reach and becomes our worst enemy.

### Illustrations of the Culm Plant, and Suggested Improvements.

Cut No. 1.—This represents our Dodson plant, which was the first ever built to help the breaker culm pipe flush the chambers in the mine as they were finished. As can be seen on the cut, it is made up of a pair of engines 12 by 12 inches; one pair of rolls; one set of elevators, and two sets of scrapers, one at right angles with the other. When this was built, we thought the pioneer plant to be faultless, but now its faults are numerous.

1. It has only one pair of rolls, when it should have enough to pulverize the culm.

2. The material, large and small, is all going through these rolls. The small should be taken out by a screen to save the rolls.

3. Men load the scrapers with shovels, which is too slow and expensive.

4. They are steel tooth rollers, when they should be made of cast iron in sections so that they could be changed. The old-fashioned cast iron rollers were thrown out on account of making too much culm by breaking the coal. This is a very good reason for giving them this work to do.

Cut No. 2.—This is the Black Diamond plant, which is exactly the same as the one at Dodson and open to the same objections.

Cut No. 3.—This shows the culm bank at Black Diamond and the place from which the culm is removed.

Cut No. 4.—This is an idea which I have had for some time as to how a plant of this sort should be constructed. Mr. T. R. Griffiths has made a drawing which is attached. You will notice it has three sets of rollers and three small screens, one to screen the dirt from the first pair of rollers and the second screen to screen it from the second pair and the third to screen it from the third. The first pair of rolls should break the large bone and slate down to egg size, the second pair should break it to chestnut size, and the third pair should grind it to No. 2 buckwheat and dust. This seems to be expensive, but such a plant would save itself in pipes, water and labor in six months.

Cut No. 5.—Mr. T. R. Griffiths has also suggested a plan by which we can feed the scraper line by steam power. You will notice by the illustration that it is a frame on wheels that can be pushed into the dump and kept against it; then comes a pair of circular elevators to take the dirt up in front over the top and dump the same into a chute that leads into the main line of scrapers. Some might suggest a large hose and water to wash it into the trough. This has too many objections.

1. Situated near towns there is no place to properly care for the water.
2. It would feed the pipe irregularly and thus block it.
3. The stuff thus wet would clog half the buckets of the elevators by sticking in the bottom and destroying their capacity.
4. In winter the water would freeze.

Dodson Culm Plant—Cost.

| | |
|---|---|
| Cost of engine, crusher rolls, elevators and conveyors, ... | $4,873 42 |
| Erection and construction of same, ... | |
| Pump for supplying fresh water for culm flushing, ... | 1,250 00 |
| Steam and column pipe for pump, ... | |
| Culm pipe from plant to shaft head, ... | |
| Culm pipe inside mines: Dodson breaker and bank culm are flushed through the same pipe, ... | 1,350 00 |
| 500 feet of 4-inch pipe, ... | |
| 2,500 feet of 5-inch pipe, ... | |
| 1,500 feet of 6-inch pipe, ... | |
| Total, ... | $7,473 42 |

Culm Flushed Daily (7 hours).

| | |
|---|---|
| From breaker, ... | 119 Tons. |
| From culm bank, ... | 80 Tons. |
| Total, ... | 199 Tons. |

## Ratio of Water to Culm.

1½ lbs. to 1¾ lbs. of water to 1 lb. culm, to flush level and down hill places.

3 lbs. to 6 lbs. of water to 1 lb. of culm, to flush up hill, according to height, 10 to 100 feet above level of shaft bottom.

## Average Daily Inside Expense.

| | | |
|---|---|---|
| Changing and renewing pipes, 1 man, $2 19 | $2 19 | |
| 2 men, 1 88 | 3 76 | $5 95 |
| Opening blocked pipe, | | 50 |
| Pipe for renewing worn out sections (250 feet monthly), | | 2 80 |
| Pumpman, 10 hours work pumping out flushed water, | | 1 88 |
| | | $11 13 |

## Average Daily Outside Expense.

| | | |
|---|---|---|
| Three men loading conveyors with culm, 21 hours, at | $1 35 | $2 84 |
| One engineer, 8 hours, at | 1 45 | 1 16 |
| One pumpman, 10 hours, at | 1 40 | 1 40 |
| Water for boiler, | 25 | |
| One-half fireman's wages, | 82 | |
| Four tons of coal at fifty cents, | 2 00 | |
| | | 3 07 |
| Wear and tear of crusher rollers, pinions, etc., (Two pairs of crusher rollers worn out in six years). | | 1 30 |
| | | $9 77 |
| Total average daily inside and outside expense, | | $20 90 |

## Average Daily Cost of Flushing Breaker Culm Only.

| | |
|---|---|
| Half of inside expense, | $5 57 |
| Pumpman, outside, | 1 40 |
| Half of power, outside, | 1 54 |
| | $8 51 |

## Labor, etc., Dispensed with Daily by Flushing the Culm—Outside.

| | |
|---|---|
| Two mules less on bank, at $1.00 per day, | $2 00 |
| Two drivers less on bank, at $1.25 per day, 14 hours, | 1 75 |
| Difference in loader's wages, | 25 |
| | $4 00 |

Inside.

| | | | |
|---|---|---|---|
| One timberman, 10 hours, at $2.19, | $2 19 | | |
| Two timbermen less, 20 hours, at $1.88, | 3 76 | | |
| | $5 95 | | |
| | | 2 | Shifts. |
| | $11 90 | | |
| Timber used by two shifts of men, | 18 00 | | |
| | | | 29 90 |
| Total outside and inside labor, etc., dispensed with daily by flushing, | | | $33 90 |
| Daily inside and outside expense of flushing, | | | 19 60 |
| Net daily saving by flushing, | | | $14 30 |

Black Diamond Culm Plant—Cost.

| | |
|---|---|
| Cost of engine, crusher rolls, machinery, elevators and conveyors, | $4,200 00 |
| Erection and construction of same, | |
| Two pumps for supplying fresh water for culm flushing, | |
| Steam and column pipes for pump, | 600 00 |
| Culm pipe from plant to shaft head, | |
| Culm pipe from breaker to shaft head, | |
| Culm pipe inside mines, | |
| 5,624 feet of 4-inch pipe bank culm line, $1,068.56, | 1,480 12 |
| 524 feet of 4-inch pipe breaker culm line, | |
| 2,400 feet of 3-inch pipe breaker culm line, $411.56, | |
| | $6,280 12 |

Culm Flushed Daily (7 Hours).

| | |
|---|---|
| Breaker culm, | 147 tons. |
| Bank culm, | 140 tons. |
| | 287 tons. |

Ratio of Water to Culm.

1½ lbs. to 1¾ lbs. of water to 1 lb. culm, to flush level and down hill places.

3 lbs. to 6 lbs. of water to 1 lb. culm, to flush up hill, according to height, 10 to 100 feet above level of shaft bottom.

Average Daily Inside Expense.

| | | |
|---|---|---|
| Labor, changing and renewing pipes, breaker culm, | $1 82 | |
| Bank culm, | 3 64 | |
| | | $5 46 |

| | |
|---|---|
| Opening blocked pipe, | 50 |
| Pipe used for renewing worn out sections, | 3 00 |
| Pumpman, 10 hours, pumping out flushed water, | 1 75 |
| | $10 71 |

Average Daily Outside Expense.

| | |
|---|---|
| 5 men loading conveyors with culm, 35 hours, at $1.35, | $4 73 |
| 1 engineer, 8 hours, at $1.45, | 1 16 |
| 1 pumpman, 10 hours, at $1.40, | 1 40 |
| Power, | 3 00 |
| Wear and tear of crusher rollers, etc., | 2 00 |
| (4 pairs of rollers worn out in six years. Black Diamond wears out rollers quicker than Dodson on account of grinding ashes.) | |
| | $12 29 |
| Total average daily inside and outside expense, | $23 00 |

Average Daily Cost of Flushing Breaker Culm Only.

| | |
|---|---|
| Inside, half, | $5 35 |
| Outside, pumpman, | 1 40 |
| Outside, half of power, | 1 50 |
| | $8 25 |

Labor, etc., Dispensed with by Daily Flushing.

| | | |
|---|---|---|
| Outside— | | |
| 1 mule less, at $1.00 per day, | $1 00 | |
| 1 driver at 7 hours, at $1.00, | 70 | |
| 2 bankmen, 14 hours, at $1.35, | 1 89 | |
| | | $3 59 |
| Inside— | | |
| 1 timberman less, at $1.80, | $1 80 | |
| 2 timbermen less, at $3.22, | 3 22 | |
| | $5 02 | |
| $5.02 x 2 shifts, | $10 04 | |
| Timber per shift used less $9.90 x 2 shifts, | 19 80 | |
| | | 29 84 |

| | |
|---|---|
| Labor, etc., dispensed with daily, by flushing, ..... | $33 43 |
| Daily outside and inside expense of flushing, ..... | 23 00 |
| Net daily saving by flushing, ..... | $10 43 |

In closing this report we should call your attention to the following facts:

1. The culm plants of both collieries are put at their original valuation. Their depreciation, of course, has been considerable, and should be considered.

2. Better and improved plants can be built now for less money. I think the one I suggest in Cut No. 4 will not cost much more.

3. When taking into consideration the items "Timber and Timbermen" in this report, no appropriation for a general squeeze was mentioned. That also should be considered. As you know, this of itself can run up to thousands of dollars in timber and labor alone, besides the loss of lives and the damages.

4. Veins with the thin strata between, in some cases cannot be mined without being filled in some shape or form. Mining under towns, where the surface of the ground is the same as in this (the Wyoming) valley, cannot be done without running the greatest risk.

5. Bore holes should be as numerous as the property and location of the culm banks will allow, in order to save pipes.

6. The facts and statements in this report are based on the operating at our own collieries, and their conditions therefore cannot be applied to other collieries without being changed to suit the nature of the ground, grade of strata, and the localities of the culm bank.

Note.—Since the above article was written, we turned the breaker culm and the bank culm together into a 4-inch pipe and increased the water one-third. This is working successfully on the level of the shaft and under the level, but it cannot be applied to flush up a heavy grade for the friction will become too great and the pipe is too small to permit an increase of the water in order to get the necessary pressure.

The following report on the same subject was presented from Mr. Chas. P. Ford, a member of the committee and superintendent of the "Florence" and "Mt. Jessup" collieries:

The matter of running culm back into the mines was first projected with a view of economizing space, or ground, for dumping breaker refuse, culm, etc., and the expense of handling the same from the breaker to the bank. Then was added the idea of support to the mine roof, with a view of taking out pillars of coal, which otherwise would be difficult and hazardous to mine.

We will endeavor to treat the subject under these heads:

First. Economizing Ground Space.

In a number of cases this object is accomplished, and where breakers are located near towns, and surface rights are limited, the end attained is invaluable. The actual saving made is dependent on locality and surroundings.

Second. The Expense of Handling Culm from the Breaker.

By this is meant the outside expenditure, such as dump cars, mules, cost of loading, unloading, drivers, tracks, and in numerous cases, claims for damages for polluting streams and flooding adjacent property. Supposing the colliery already equipped for bank dumpage. We have made a calculation based on 150,000 tons per annum. Three years would equal a breaker output of 450,000 tons. The culm sent underground from that tonnage covered about eighteen and one-half acres in the mines, averaging seven feet high, requiring 5,670,000 cubic feet of culm to fill this space. The contents named would equal 101,250 tons, or 33,750 tons per annum, or 2,850 tons per month. To handle this quantity from the breaker would cost about $6.00 per day, or at twenty days per month, would equal $120.00 per month, or, in round numbers, $1,500 per year, or one cent per ton cost on the output of the breaker. The claims in many cases paid by individual operators, the Lehigh Valley Coal Company, and the Lehigh and Wilkes-Barre Coal Company, for polluting streams and despoiling property adjacent to streams, are enormous. Now, as jigs and other similar means of washing coal are more generally used, by reason of the exhaustion of the big veins and working of the faulty small veins, strippings, etc., the culm going to the bank wet increases the drainage to the water ways, and thereby augments the liability for damage. The running of culm back into the mines eliminates this annoyance and expense. Again, the handling of this culm wet from the breaker, in winter months, owing to the freezing in pockets or tanks, would at least double the expense, compared with handling dry culm, but this is all obviated by sending it back into the mines.

Third. The Inside Expense Necessary to Take Care of this Culm.

A bore hole is required, or is preferable, especially if the culm is to run any distance, or up an incline to reach the head or face of the chamber or breasts to be filled, as the vertical height adds impetus to the material. The height of the bore hole depends, necessarily, on the surface covering of the veins. A six-inch hole is used, and costs $2.50 per foot. Where a shaft is operated, the culm pipes can be hung in it, which obviates the bore hole. There is generally

fairly good pipe around the mine to convey this material. If the threads are worn, the joints can be wedged sufficiently to carry the water and culm, and if the pipe is turned one-quarter round, say once in every two months, its life will be lengthened greatly, as the wear is uniform, and the friction of the sulphur and coal is equalized.

The place selected for this deposit of culm is the worked out portion of the mine nearest to the bore hole. Stoppings are built at the foot of the places (chambers or breasts) at the narrow opening from the gangway. These consist of props not more than four feet apart, boarded with two-inch plank well fitted on the top, bottom and sides, but no battens are used over the cracks, as it is found necessary to build the stoppings in such a way that while they will hold back the culm, they will allow the water to pass, thus acting as a sieve.

The average cost of putting stoppings in a 9 foot vein would be $9.50, including material.

In three years there were constructed

| | |
|---|---|
| 37 stoppings, at 100 sq. ft., average cost, $9.50, ..... | $351 50 |
| 42 stoppings, at 30 sq. ft., average cost, $4.35, ..... | 182 70 |
| Total, ..... | $534 20 |

Arguments have been used against running culm back into the mines, as danger of fire from spontaneous combustion was urged. During the first two years, twelve to fifteen tests were made, digging to the bottom rock, but, with one exception, failed to find any sign of heat or fire, and investigation proved that one to be hot water from the exhaust of the pumps, no damage resulted from it.

The quantity of coal left in pillars is about 33 per cent. of the vein contents, and seven-eighths of this is obtained by filling in with culm and supporting the roof while removing the pillars, or about 29 per cent. of the entire vein, in places where it is necessary to support the roof. Where it is not necessary to support the roof, the advantage is not so great, except in making it safer for the miner while removing the pillars. The old method of robbing the pillars and letting the roof fall in behind them, is about the same as when filling in with culm so far as regards the percentage of coal removed from the pillar.

In old workings, culm fills too slowly to take out all pillars successfully by its use. The mine should be opened with that end in view. As each chamber is worked out, fill it up with culm, taking the pillar with each alternate road. No. 1 pillar would come out on No. 2 road, etc. To rob an old mine, fill up every alternate chamber, as the pillars would be irregular and too narrow to lay roads, and could not carry air where they average twelve to fifteen feet in width.

We have arrived at the conclusion that coal under the size of that which passes over a screen of one-eighth mesh is worthless for practical use as a steam coal, and we do not think the preparation and handling of such coal pays the operator, railroad, or consumer.

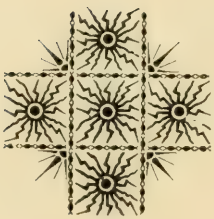
The operator gets less in reality than he can possibly load it on the cars for. The railroad is handling it for less than the prepared sizes, and the consumer is blowing it up his stack. While the mine car average is increased, the average price realized is so reduced that the result is about the same. It costs no more to put pea coal, and in some cases chestnut, into the car than it does these fine sizes, and yet it is clear to every one that the fine sizes, buckwheat, particularly, are surely crowding the larger sizes from the market.

The cost of loading bank refuse and returning it to the mines, in case culm is used for steam purposes, is as follows:

| | |
|---|---|
| To load a car of refuse, hoist and run the same into the breaker, would cost per ton, | $0 25 |
| To mine pillar and put same through the breaker, including royalty at 25 cents, | 1 55 |
| Average net price realized for coal at breaker, | 1 75 |
| Deduct cost of mining pillar, | 1 55 |
| | $0 20 |

The difference between the cost of handling the refuse, and the profit on the coal shows five cents loss.

# LAWS RELATING TO COAL MINING.



# LAWS RELATING TO COAL MINING.

## AN ACT

To protect miners in the bituminous coal region of the Commonwealth.

Section 1. Be it enacted, &c., That after the period of three months from the passage of this act, any miner employed by an individual, firm or corporation for the purpose of mining coal shall be entitled to receive from his employer, and failing to receive then to collect, by due process of law, at such rates as may have been agreed upon between the employer and the employed, full and exact wages accruing to him for the mining of all sizes of merchantable coal so mined by him, whether the same shall exist in the form of nut or lump coal; and in the adjudication of such wages seventy-six pounds shall be deemed one bushel, and two thousand pounds net, shall be deemed one ton of coal: Provided, That nothing contained in this act shall be construed to prevent operators and miners contracting for any method of measuring and screening the coal mined by such miners, as they may contract for.

Section 2. That at every bituminous coal mine in this Commonwealth, where coal is mined by measurement, all cars, filled by miners or their laborers, shall be uniform in capacity at each mine; no unbranded car or cars shall enter the mine for a longer period than three months, without being branded by the mine inspector of the district, wherein the mine is situated; and any owner or owners, or their agents, violating the provisions of this section, shall be subject to a fine of not less than one dollar per car for each and every day as long as the car is not in conformity with this act, and the mine inspector of the district, where the mine is located, on receiving notice from the check-master or any five miners working in the mine, that a car or cars are not properly branded, or not uniform in capacity according to law, are used in the mine where he or they are employed, then inside of three days from the date of receiving said notice, it shall be his duty to enforce the provisions of this section, under penalty of ten dollars for each and every day he permits such car or cars to enter the mine: Provided, That nothing contained in this section shall be construed or applied to those mines which do not use more than ten cars.

Section 3. That at every bituminous coal mine in this Commonwealth, where coal is mined by weight or measure, the miners or a majority of those present at a meeting called for that purpose, shall have the right to employ a competent person as check-weighman, or check-measurer as the case may require, who shall be permitted at all times to be present at the weighing or measurement of coal, also have power to weigh or measure the same, and during the regular working hours to have the privilege to balance and examine the scales, or measure the cars: Provided, That all such balancing or examination of scales shall only be done in such way, and in such time, as in no way to interfere with the regular working of the mines. And he shall not be considered a trespasser during working hours while attending to the interests of his employers. And in no manner shall he be interfered with or intimidated by any person, agent, owner or miner. And any person violating these provisions shall be held and deemed guilty of a misdemeanor, and upon conviction thereof, he shall be punished by a fine of not less than twenty dollars, and not exceeding one hundred dollars, or imprisonment at the discretion of the court. It shall be a further duty of check-weighman or check-measurer to credit each miner with all merchantable coal mined by him, on a proper sheet or book to be kept by him for that purpose. When differences arise between the check-weighman or check-measurer and the agent or owners of the mine, as to the uniformity, capacity or correctness of scales or cars used, the same shall be referred to the mine inspector of the district where the mine is located, whose duty it shall be to regulate the same at once, and in the event of said scales or cars proving to be correct, then the party or parties applying for the testing thereof to bear all costs and expenses thereof; but if not correct then the owner or owners of said mine to pay the cost and charges of making said examination: Provided further, That should any weighman or weighmen, agent or check-measurer, whether employed by operators or miners, knowingly or willfully adopt or take more or less pounds for a bushel or ton than is provided for in the first section of this act, or willfully neglect the balancing or examining of the scales or cars, or knowingly and willfully weigh coal with an incorrect scale, he shall be guilty of a misdemeanor, and upon conviction thereof, shall be imprisoned in the county jail for three months.

Section 4. All acts or parts of acts inconsistent with this act are hereby repealed.

Approved—The 1st day of June, A. D. 1883.

ROBT. E. PATTISON.

## AN ACT

To provide payment to the miner for all clean coal mined by him.

Section 1. Be it enacted, &c., That from and after the passage of this act all individuals, firms and corporations engaged in mining coal in this Commonwealth, who, instead of dumping all the cars that come from the mine into a breaker or chutes, shall switch out one or more of the cars for the purpose of examining them, and determining the actual amount of slate or refuse, by removing said slate or refuse from the car, and who shall, after so doing, willfully neglect to allow the miner in full for all clean coal left after the refuse, dirt or slate is taken out, at the same rate paid at the mine for clean coal less the actual expense of removing said slate or refuse, he shall be deemed guilty of a misdemeanor.

Section 2. That any individual, firm or corporation as aforesaid, violating the provisions of this act, upon suit being brought and conviction had, shall be sentenced by the court to pay a fine of not more than one hundred dollars, and to make restitution by paying to the miner the amount to which, under this act, he would be entitled for the coal mined by him, and for which he was not paid.

Approved—The 13th day of June, A. D. 1883.

ROBT. E. PATTISON

---

## AN ACT

To provide for the recovery of the bodies of workmen enclosed, buried or entombed in coal mines.

Section 1. Be it enacted, &c., That whenever any workman or workmen shall heretofore have been, or shall hereafter be enclosed, entombed or buried in any coal mine in this Commonwealth, it shall be the duty of the court, sitting in equity, in the county wherein such workman or workmen are enclosed, entombed or buried, upon the petition of any of the relatives of those enclosed, entombed or buried, to make an order of court for the petitioner to take testimony in order that the court may ascertain whether such workman or workmen, or the body or bodies of such workman or workmen, can be recovered or taken out of said mine.

If, after full hearing, it shall appear to the court that such undertaking is feasible or practicable, said court may forthwith issue a peremptory mandamus to the owner or owners, lessee or lessees, operator or operators of such coal company, to forthwith proceed to work for and recover and take out the body or bodies of such work-

man or workmen, and said court shall have full authority to enforce such peremptory mandamus in the manner already provided for the enforcement of such process.

Approved—The 9th day of May, A. D. 1889.

JAMES A. BEAVER.

---

## AN ACT

To provide for the examination of miners in the anthracite region of this Commonwealth and to prevent the employment of incompetent persons as miners in anthracite coal mines.

Section 1. Be it enacted, &c., That hereafter no person whomsoever shall be employed, or engaged in the anthracite coal region of this Commonwealth as a miner in any anthracite coal mine, without having obtained a certificate of competency and qualification so to do from the "Miners' Examining Board" of the proper district, and having been duly registered as herein provided.

Section 2. That there shall be established, in each of the inspection districts in the anthracite coal region, a board to be styled the "Miners' Examining Board" of the ———— district, to consist of nine persons, who shall be appointed by the president judge of the proper county, from among the most skillful miners actually engaged in said business in their respective districts, and who must have had five years' practical experience in the same, three of whom to serve one year, three two years and three five years, and thereafter annually three to serve for the term of three years. The said persons, so appointed, shall be and constitute the "Miners' Examining Board" for their respective districts and shall hold the office for the term for which they were appointed, or until their successors are duly appointed and qualified, and shall receive as compensation for their services three dollars per day for each day actually engaged in this service and all legitimate and necessary expenses incurred in attending the meetings of said board, under the provisions of this act, and no part of the salary of said board, or expenses thereof, shall be paid out of the State Treasury.

Each of said boards shall organize by electing one of their members secretary, and by dividing themselves into three sub-committees for the more convenient discharge of their duties; each of said committees shall have all the powers hereinafter conferred upon the board, and whenever in this act the words examining board are used, they shall be taken to include any of the committees thereof.

Every member of said board shall, within ten days of their appointment or being apprised of the same, take and subscribe an oath

or affirmation, before a properly qualified officer of the county in which they reside, that they will faithfully and impartially discharge the duties of their office.

Any vacancies occurring in said board shall be filled in the manner hereinbefore provided, from among such only as are eligible for original appointment.

Section 3. Each of said examining boards shall designate some convenient place within their districts for the meetings of the several committees thereof, of which due notice shall be given, by advertisement in two or more newspapers of the proper county, and so divided as to reach, as nearly as practicable, all the mining districts therein. Each of said committees shall open, at the designated place of meeting a book of registration, in which shall be registered the name and address of each and every person duly qualified under this act to be employed as a miner in an anthracite coal mine. And it shall be the duty of all persons now employed as miners, or who shall hereafter desire to be so employed, to apply to said board and be registered as such within ninety days thereafter; application for registration only may be sent by mail to the board after being properly attested before any person authorized to administer an oath or affirmation in the county in which the applicant resides. The form of application shall be subject to such regulation as may be prescribed by the boards, but in no case shall any applicant be put to any unnecessary expense in order to secure registration.

Section 4. That said board shall be entitled to demand and receive from each applicant for examination and registration and for the certificate herein and after provided, a fee not exceeding fifty cents, and for registration only, a fee not to exceed twenty-five cents, and a like fee of twenty-five cents for registering any person who shall have been examined and registered by any other said board, and the amount derived from this source shall be held by said boards and be applied to the expenses and salaries herein provided, and such as may arise under the provisions of this act; and the said boards shall report annually to the court of common pleas of their respective counties and the Bureau of Statistics, all moneys received and disbursed under the provisions of this act, together with the number of miners examined and registered under this act and the number who failed to pass the required examination.

Section 5. That it shall be the duty of each of said boards to meet at least once every month, at such places as they may deem expedient, and examine all persons who shall desire to be employed as miners in their respective districts, and the said boards shall grant to such persons as may be qualified, certificates of competency or qualification, which shall entitle the holder thereof to be employed as, and do the work of, miners as may be expressed in said certificate, and such certificate shall be good and sufficient evidence of registra-

tion and competency under this act, and the holder thereof shall be entitled to be registered without examination in any other of the anthracite districts, upon the payment of the fee herein provided. All persons applying for examination for a certificate of competency, or to entitle them to be employed as miners, must produce satisfactory evidence of having had not less than two years' practical experience as a mine laborer.

Section 6. That no person shall hereafter engage as a miner in any anthracite coal mine without having obtained such certificate as aforesaid. And no person shall employ any person as a miner who does not hold such certificate as aforesaid, and no mine foreman or superintendent shall permit or suffer any person to be employed under him, or in the mines under his charge and supervision as a miner, who does not hold such certificate. Any person who shall violate or fail to comply with the provisions of this act shall be guilty of a misdemeanor and on conviction thereof, in the court of quarter sessions, shall be sentenced to pay a fine not exceeding one hundred dollars.

Section 7. That all persons who shall be actually engaged as miners at the time of the passage of this act, shall be entitled to registration without examination, upon producing satisfactory proof that they have been employed in an anthracite mine in this Commonwealth.

Section 8. It shall be the duty of the several Miners' Examining Boards to investigate all complaints or charges of non-compliance or violation of the provisions of this act and prosecute all persons so offending, whenever there shall appear to the board reasonable ground for such action.

Section 9. That all acts and parts of acts inconsistent herewith be and the same are hereby repealed.

Approved—The 9th day of May, A. D. 1889.

JAMES A. BEAVER.

---

## AN ACT

To provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania and for the protection and preservation of property connected therewith.

### ARTICLE I.

Section 1. Be it enacted, &c., That this act shall apply to every anthracite coal mine or colliery in the Commonwealth, provided the said mine or colliery employs more than ten (10) persons.

ARTICLE II.

Inspectors and Inspection Districts.

Section 1. The counties of Susquehanna, Wayne, Luzerne, Lackawanna, Carbon, Schuylkill, Northumberland, Columbia, Lebanon and Dauphin, or so much of them as may be included under the provisions of this act, shall be divided into eight (8) inspection districts as follows:

Section 2. First. All that portion of the Lackawanna coal field lying northeast of East and West Market streets in the city of Scranton, and of Slocum and Drinker streets in the borough of Dunmore, including the coal fields of Susquehanna and Wayne counties.

Second. That portion of the Lackawanna coal field in Lackawanna county lying southwest of East and West Market streets in the city of Scranton, and west of Slocum and Drinker streets in the borough of Dunmore.

Third. That portion of the Wyoming coal fields situated in Luzerne county, east of and including Plains and Kingston townships.

Fourth. The remaining portion of the Wyoming coal field west of Plains and Kingston townships, including the city of Wilkes-Barre and the boroughs of Kingston and Edwardsville.

Fifth. That part of Luzerne county lying south of the Wyoming coal field together with Carbon county.

Sixth. That part of the Schuylkill coal field in Schuylkill county lying north of the Broad Mountain and east of a meridian line through the centre of the borough of Girardville.

Seventh. That part of the Schuylkill coal field in Schuylkill county lying north of the Broad Mountain and west of a meridian line through the centre of the borough of Girardville, together with Columbia, Northumberland and Dauphin counties.

Eighth. All that part of the Schuylkill coal field in Schuylkill county lying south of the Mahanoy Valley, and the county of Lebanon.

Section 3. In order to fill any vacancy that may occur in the office of Inspector of Mines by reason of expiration of term, resignation, removal for cause or from any other reason whatever, the judges of the court of Lackawanna county shall appoint an examining board for the counties of Susquehanna, Wayne and Lackawanna, and the judges of the court of Luzerne county shall appoint an examining board for the counties of Sullivan, Carbon and Luzerne, and the judges of Schuylkill county shall appoint an examining board for the counties of Schuylkill, Northumberland, Lebanon, Columbia and Dauphin.

Section 4. The said Board of Examiners shall be composed of three reputable coal miners in actual practice and two reputable

mining engineers, all of whom shall be appointed at the first term of court in each year, to hold their places during the year. Any vacancies that may occur in the Board of Examiners shall be filled by the court as they occur. The said Board of Examiners shall be permitted to engage the services of a clerk, and they, together with the clerk, shall each receive the sum of five dollars per day for every day they are actually engaged in the discharge of their duties under this appointment, and mileage at the rate of six cents per mile from their home to the place of meeting and return by the nearest practicable railway route.

Section 5. Whenever candidates for the office of inspector are to be examined, the said examiner shall give public notice of the fact in not more than five papers published in the inspection district and at least two weeks before the meeting, specifying the time and place where such meeting shall be held. The said examiners shall be sworn to a faithful discharge of their duties, and four of them shall agree in their recommendation of all candidates to the Governor who have answered ninety per centum of the questions; the names of the applicants, the questions asked and answered thereto shall be sent to the Secretary of the Commonwealth, and published in at least two local papers, daily or weekly, and shall recommend only such applicants as they find qualified for the office.

Should the Board of Examiners not be able to agree in their selection and recommendation of a candidate, the judges of the court of common pleas shall dissolve the said board and appoint a new board of like qualifications and powers.

Upon the recommendation of the Board of Examiners as aforesaid, the Governor shall appoint such person or persons to fill the office of inspector of mines under this act, and shall issue to him a commission for the term of five years, subject, however, to removal for neglect of duty or malfeasance in office as hereinafter provided for.

Section 6. The person so appointed must be a citizen of Pennsylvania and shall have attained the age of thirty years. He must have a knowledge of the different systems of working coal mines, and he must produce satisfactory evidence to the Board of Examiners of having had at least five (5) years' practical experience in anthracite coal mines of Pennsylvania. He must have had experience in coal mines where noxious and explosive gases are evolved.

Before entering upon the duties of his office he shall take an oath or affirmation before an officer properly qualified to administer the same, that he will perform his duties with fidelity and impartiality; which oath or affirmation shall be filed in the office of the prothonotary of the county. He shall also provide himself with the most modern instruments and appliances for carrying out the intentions of this act.

Section 7. The salary of each of the said inspectors shall be three thousand dollars per annum, which salary, together with the expense incurred in carrying into effect the provisions of this act, shall be paid by the State Treasurer out of the Treasury of the Commonwealth upon the warrant of the Auditor General.

Section 8. In case the inspector becomes incapacitated to perform the duties of his office, for a longer period than two weeks, it shall be the duty of the judges of the court of common pleas to deputize some competent person recommended by the Board of Examiners to fill the office of inspector until the said inspector shall be able to fulfill the duties of his office and the person so appointed shall be paid in the same manner as is provided for the Inspector of Mines.

Section 9. Each of the said inspectors shall reside in the district for which he is appointed, and shall give his whole time and attention to the duties of the office. He shall examine all the collieries in his district as often as his duties will permit or as often as the exigencies of the case or the condition of the mines require it; see that every necessary precaution is taken to secure the safety of the workmen and that the provisions of this act are observed and obeyed; attend every inquest held by the coroner, or his deputy, upon the bodies of persons killed in or about the collieries in his district; visit the scene of the accident for the purpose of making an examination into the particulars of the same whenever loss of life or serious personal injury occurs as elsewhere herein provided for, and make an annual report of his proceedings to the Secretary of Internal Affairs of the Commonwealth at the close of every year, enumerating all the accidents in and about the collieries of his district, marking in tabular form those accidents causing death or serious personal injury, the condition of the workings of the said mines with regard to the safety of the workmen therein and the ventilation thereof, and the result of his labors generally shall be fully set forth.

Section 10. The Board of Examiners, each for its respective district as hereinbefore provided for, in order to divide more equitably among the several mine inspectors the labor to be performed and the territory to be covered by them in the performance of the duties of the office, may, at any time when they shall deem it desirable or necessary, readjust the several districts by the creation of new boundary lines, thereby adding to or taking from, as the case may be, the districts as at present bounded and described, if the court having jurisdiction approve the same.

And in case it shall be deemed desirable or necessary to readjust any contiguous district, comprised by more than one judicial district, by the creation of new boundary lines, then in such case the examining boards of the territory affected or requiring such adjustment, shall, in joint session, make such change or readjustment as they shall jointly agree upon, if the nearest court having jurisdic-

tion to the territory affected to whom the said joint examining boards shall submit the matter, shall approve the same.

Section 11. The mine inspector shall have the right, and it is hereby made his duty to enter, inspect and examine any mine or colliery in his district and the workings and machinery belonging thereto, at all reasonable times, either by day or night, but not so as to impede or obstruct the working of the colliery, and shall have power to take one or more of his fellow inspectors into or around any mine or colliery in the district for which he is appointed, for the purpose of consultation or examination.

He shall also have the right and it is hereby made his duty, to make inquiry into the condition of such mine or colliery workings, machinery, ventilation, drainage, method of lighting or using lights and into all matters and things connected with or relating to, as well as to make suggestions providing for the health and safety of persons employed in or about the same, and especially to make inquiry whether the provisions of this act have been complied with.

The owner, operator or superintendent of such mine or colliery is hereby required to furnish the means necessary for such entry, inspection, examination, inquiry and exit.

The inspector shall make a record of the visit, noting the time and material circumstances of the inspection.

Section 12. No person who shall act or practice as a land agent or as the manager or agent of any coal mine or colliery, who is pecuniarily interested in operating any coal mine or colliery in his district, shall, at the same time, hold the office of inspector of mines under this act.

Section 13. Whenever a petition signed by fifteen or more reputable coal operators or miners, or both, setting forth that any inspector of mines neglects his duties, or is incompetent, or is guilty of malfeasance in office, it shall be the duty of the court of common pleas of the proper county to issue a citation in the name of the Commonwealth to the said inspector to appear at not less than five days' notice, on a day fixed, before said court and the court shall then proceed to inquire into and investigate the allegations of the petitioners. If the court find that said inspector is neglectful of his duties or that he is incompetent to perform the duties of the office, for any cause that existed previous to his appointment or that has arisen since his appointment, or that he is guilty of malfeasance in office, the court shall certify the same to the Governor of the Commonwealth, who shall declare the office of inspector for the district vacant and proceed, in compliance with the provisions of this act, to appoint a properly qualified person to fill the office.

The cost of said investigation shall be borne by the removed inspector; but if the allegations in the petition are not sustained the costs shall be paid by the petitioners.

Section 14. The maps and plans of the mines and the records thereof, together with all the papers relating thereto, shall be kept by the inspector, properly arranged and preserved, in a convenient place in the district for which each inspector has been appointed, and shall be transferred by him with any other property of the Commonwealth that may be in his possession, to his successor in office.

Section 15. The persons who, at the time this act goes into effect, are acting as inspectors of mines under the acts hereby repealed shall continue to act in the same manner as if they had been appointed under this act, and until the term for which they were appointed has expired.

ARTICLE III.

## Surveys, Maps and Plans.

Section 1. The owner, operator or superintendent of every coal mine or colliery shall make, or cause to be made, an accurate map or plan of the workings or excavations of such coal mine or colliery, on a scale of one hundred feet to the inch, which map or plan shall exhibit the workings or excavations in each and every seam of coal and the tunnels and passages connecting with such workings or excavations. It shall state in degrees the general inclination of the strata with any material deflection therein in said workings or excavations, and shall also state the tidal elevations of the bottom of each and every shaft, slope, tunnel and gangway, and of any other point in the mine or on the surface where such elevation shall be deemed necessary by the inspector. The map or plan shall show the number of the last survey station and date of each survey on the gangways or the most advanced workings. It shall also accurately show the boundary lines of the lands of the said coal mine or colliery and the proximity of the workings thereto, and in case any mine contains any water dammed up in any part thereof, it shall be the duty of the owner, operator or superintendent to cause the true location of the said dam to be accurately marked on said map or plan, together with the tidal elevation, inclination of strata and area of said workings containing water, and whenever any workings or excavations is approaching the workings where such dam or water is contained or situated, the owner, operator or superintendent shall notify the inspector of the same without delay.

A true copy of which map or plan the said owner, operator or superintendent shall deposit with the inspector of mines for the district in which the said coal mine or colliery is situated, showing the workings of each seam, if so desired by the inspector, on a separate sheet of tracing muslin. One copy of the said map or plan shall be kept at the colliery.

Section 2. The said owner, operator or superintendent shall, as often as once in every six months place, or cause to be placed, on the said Inspector's map or plan of said coal mine or colliery, the plan of the extensions made in such coal mine or colliery during the preceding six months. The said extensions shall be placed on the inspector's map and the map returned to the inspector within two months from the date of the last survey.

Section 3. When any coal mine or colliery is worked out preparatory to being abandoned, or when any lift thereof is about to be abandoned, the owner, operator or superintendent of such coal mine or colliery shall have the maps or plans thereof extended to include all excavations, as far as practicable, and such portions thereof as have been worked to the boundary lines of adjoining properties; or any part or parts of the workings of which is intended to be allowed to fill with water, must be surveyed in duplicate and such surveys must practically agree, and certified copies be filed with the inspector of the district in which the mines are situated.

Section 4. Whenever the owner, operator or superintendent of any coal mine or colliery shall neglect or refuse, or from any cause not satisfactory to the inspector, shall fail, for a period of three months, to furnish to the inspector the map or plan of said colliery or of the extensions thereto, as provided for in this act, the inspector is hereby authorized to cause an accurate map or plan of such coal mine or colliery to be made at the expense of the owner thereof, which cost shall be recoverable from said owner as other debts are by law recoverable.

Section 5. If the inspector finds or has reason to believe, that any map or plan of any coal mine or colliery, furnished under the provisions of this act, is materially inaccurate, it shall be his duty to make application to the court of common pleas of the county in which such colliery is situate for an order to have an accurate map or plan of said colliery prepared, and if such survey shall prove that the map furnished was materially inaccurate or imperfect, such owner, operator or superintendent shall be liable for the expense incurred in making the same.

Section 6. If it shall be found that the map or plan furnished by the owner, operator or superintendent was not materially inaccurate or imperfect, the Commonwealth shall be held liable for the expense incurred in making such test survey.

Section 7. If it shall be shown that the said owner, operator or superintendent has knowingly or designedly caused or allowed such map or plan, when furnished, to be incorrect or false, such owner, operator or superintendent thus offending, shall be guilty of a misdemeanor and upon conviction thereof, shall be punished by a fine not exceeding five hundred dollars or imprisonment not exceeding three months, at the discretion of the court.

Section 8. The maps or plans of the several coal mines or collieries in each district and which are placed in the custody of the inspector, shall be the property of the Commonwealth, and shall remain in the care of the inspector of the district in which the said collieries are situated to be transferred by him to his successor in office; and in no case shall a copy of the same be made without the consent of the owner, operator or superintendent.

Section 9. The inspector's map or plan of any particular colliery shall be open for inspection, in the presence of the inspector, to any miner or miners of that colliery, whenever said miner or miners shall have cause to fear that his or their working place or places is becoming dangerous, by reason of its proximity to other workings which may be supposed to contain water or dangerous gases. Said map shall also be open to the inspection and examination of any citizen interested, during business hours.

Section 10. It shall be obligatory on the owners of adjoining coal properties to leave, or cause to be left, a pillar of coal in each seam or vein of coal worked by them, along the line of adjoining property, of such width, that taken in connection with the pillar to be left by the adjoining property owner, will be a sufficient barrier for the safety of the employes of either mine in case the other should be abandoned and allowed to fill with water; such width of pillar to be determined by the engineers of the adjoining property owners together with the inspector of the district in which the mine is situated, and the surveys of the face of the workings along such pillar shall be made in duplicate and must practically agree. A copy of such duplicate surveys, certified to, must be filed with the owners of the adjoining properties and with the inspector of the district in which the mine or property is situated.

## ARTICLE IV.

### Shafts, Slopes, Openings and Outlets.

Section 1. It shall not be lawful for the owner, operator or superintendent of any mine to employ any person or persons in such mine or permit any person or persons to be in such mine for the purpose of working therein, unless they are in connection with every seam or stratum of coal; and from every lift thereof, worked in such mine, not less than two openings or outlets, separated by a strata of not less than sixty (60) feet in breadth underground, and one hundred and fifty (150) feet in breadth at the surface, at which openings or outlets safe and distinct means of ingress and egress are at all times available for the person or persons employed in the said mine, but it shall not be necessary for the said two openings to belong to the same mine if the persons employed therein have safe, ready and

available means of ingress and egress by not less than two openings. This section shall not apply to opening a new mine or to opening any new lift of a mine while being worked for the purpose of making communication between said two outlets, so long as not more than twenty persons are employed at any one time in such mine or new lift of a mine; neither shall it apply to any mine or part of a mine in which the second outlet has been rendered unavailable by reason of the final robbing of pillars previous to abandonment, so long as not more than twenty persons are employed therein at any one time. The cage or cages and other means of egress shall, at all times, be available for the persons employed where there is no second outlet.

Section 2. The owner, operator or superintendent of any mine to which there is only one shaft, slope or outlet may petition the court of common pleas in and for the county in which such mine is situated, which said court is hereby empowered to act in the premises, setting forth that, in consequence of intervening lands between the working of his mine and the most practicable point, or the only practicable point, as the case may be, at which to make or bring to the surface from the working of his mine, he is unable to make an additional shaft, slope or outlet in accordance with the requirements of this act, whereupon the court may make an order of reference and appoint three disinterested persons, residents of the county, viewers, one or more of whom shall be a practical mining engineer, all of whom, after being sworn to a faithful discharge of their duties, shall view and examine the premises and determine as to whether the owner shall have the privilege of making an additional outlet through or upon any intervening lands, as the case may require, and report in writing to the court, which report shall be entered and filed of record. If the finding of the viewers, or any two of them, is in favor of the owner of such coal mine or colliery, he may make an additional shaft, slope or outlet under, through or upon intervening lands, as may be determined upon and provided for by the award. If the finding of the viewers is against the owner, or if no award be made by reason of any default or neglect on the part of the owner, he shall be bound to comply with the provisions of this act in the same manner as if this section had not been enacted. In case the said owner, operator or superintendent desires to, and claims that he ought to make an additional opening under, through or upon any adjoining or intervening lands, to meet the requirements of this act, for the ingress and egress of the men employed in his or their mine, he or they shall make a statement of the facts in the petition, with a survey, setting forth the point of commencement and the point of termination of the proposed outlet which he or they, their engineers, agents or employes may enter upon said intervening lands and survey and mark, as he or they shall find it proper to

adopt for such additional outlet, doing as little damage as possible to the property explored; and the viewers shall state in their report what damage will be sustained by the owner or owners of the intervening lands by the opening, constructing and using of the outlet, and if the report is not appealed from, it shall be confirmed or rejected by said court as to right and justice shall appertain, and any further and all proceedings in relation thereto shall be in conformity with like proceedings as in the case of a lateral railroad across or under intervening lands, under the act in relation to lateral railroads, approved the fifth day of May, Anno Domini one thousand eight hundred and thirty-two, and the supplements thereto, so far as the provisions of the same are applicable hereto; and the notices to the owner of intervening lands, of the intention to apply for the privilege of making an outlet and meeting of the viewers shall be given, and the costs of the case shall be paid as provided in the said act of fifth day of May, Anno Domini one thousand eight hundred and thirty-two, and the supplements thereto.

Section 3. The escapements, shafts or slopes shall be fitted with safe and available appliances by which the persons employed in the mine may readily escape in case an accident occurs deranging the hoisting machinery at the main outlets.

Section 4. In slopes where the angle of inclination is fifteen degrees or less there must be provided a separate traveling way, which shall be maintained in a safe condition for travel and kept free from steam and dangerous gases.

Section 5. No inflammable structure, other than a frame to sustain pulleys or sheaves, shall be erected over the entrance of any opening connecting the surface with the underground workings of any mine, and no "breaker" or other inflammable structure for the preparation or storage of coal shall be erected nearer than two hundred (200) feet to any such opening, but this act shall not be construed to prohibit the erection of a fan drift for the purpose of ventilation, or of a trestle for the transportation of cars from any slope to such breaker or structure, neither shall it apply to any shaft or slope until the work of development and shipment of coal has commenced: Provided, That this section shall not apply to breakers that are now erected.

Section 6. The top of each shaft and also of each slope, if dangerous, or any intermediate lift thereof, shall be securely fenced off by railing or by vertical or flat gates.

Section 7. Every abandoned slope, shaft, air-hole and drift shall be properly fenced around or across its entrance.

Section 8. All underground entrances to any places not in actual course of working or extension shall be properly fenced across the whole width of such entrances, so as to prevent persons from inadvertently entering the same.

Section 9. The owner, operator or superintendent of any coal mine or colliery which is worked by shaft or slope, shall provide and maintain a suitable appliance by or through which conversation can be held by and between persons at the bottom and at the top of the shaft or slope, and also an efficient means of signaling from the bottom of such shaft or slope to the engineer in charge of the hoisting engine.

Section 10. Hand rails and efficient safety catches shall be attached to, and a sufficient cover overhead shall be provided on every cage used for lowering or hoisting persons in any shaft.

Section 11. Wherever practicable, every cage or gun-boat used for lowering or hoisting persons in any slope, shall be provided with a proper protector, so constructed that persons, while on such cage or gun-boat, shall not be struck by anything which may fall or roll down said slope.

Section 12. The main link of the chain connecting the rope to the cage, gun-boat or car in any shaft or slope, shall be made of the best quality of iron; bridle chains made of the same quality of iron shall be attached to the main link, rope or rope socket from the cross-head of the cage or gun-boat when persons are being lowered or hoisted thereon.

Section 13. The ropes, safety catches, links and chains shall be carefully examined every day they are used, by a competent person delegated for that purpose and any defects therein found, by which life or limb may be endangered, shall be immediately remedied.

Section 14. An efficient brake shall be attached to every drum that is used for lowering or raising persons or material in any mine.

Section 15. Flanges or horns of sufficient dimensions to prevent the rope from slipping off the said drum shall be provided and properly attached to the drum, and all machines used for lowering or hoisting persons in mines shall be provided with an indicator to show the position of the cage, car or gun-boat in the shaft or slope.

Section 16. Over all shafts which are being sunk or shall hereafter be sunk, a safe and substantial structure shall be erected to sustain the sheaves or pulleys, at a height of not less than twenty (20) feet above the tipping-place, and the top of such shaft shall be arranged in such manner that no material can fall into the shaft while the bucket is being emptied.

Section 17. The said structure shall be erected as soon as a substantial foundation is obtained, and in no case shall a shaft be sunk to a depth of more than fifty (50) feet without such structure.

Section 18. If provision is made to land the bucket upon truck, the said truck shall be constructed in such manner that material cannot fall into the shaft.

Section 19. All rock and coal from shafts as they are being sunk, shall not be raised except in a bucket or on a cage, and such bucket or cage must be connected to the rope or chain by a safety hook, clevis or other safe attachment.

Section 20. Such shafts shall be provided with guides and guide attachments applied in such manner as to prevent the bucket from swinging while descending or ascending therein, and such guides and guide attachments shall be maintained at a distance of not more than seventy-five (75) feet from the bottom of such shaft, until its sinking shall have been completed, but this section shall not apply to shafts one hundred (100) feet or less in depth.

Section 21. Where the strata are not safe every shaft shall be securely cased, lined or otherwise made secure.

Section 22. The following rules shall be observed, as far as practicable, in every shaft to which this act applies.

First. After each and every blast the chargeman must see that all loose material is swept down from the timbers before the workmen descend to their work.

Second. After a suspension of work, and also after firing a blast in a shaft where explosive gases are evolved, the person in charge must have the said shaft examined and tested with a safety lamp before the workmen are allowed to descend.

Third. Not more than four persons shall be lowered or hoisted in any shaft on a bucket at the same time, and no person shall ride on a loaded bucket.

Fourth. Whenever persons are employed on platforms in shafts the person in charge must see that the said platforms are properly and safely constructed.

Fifth. While shafts are being sunk all blasts therein must be exploded by an electric battery.

Sixth. Every person who fails to comply with or who violates the provisions of this article shall be guilty of an offense against this act.

## ARTICLE V.

### Boilers and Connections, Machinery, &c.

Section 1. All boilers used for generating steam in and about mines and collieries shall be kept in good order, and the owner, operator or superintendent shall have them examined and inspected by a qualified person as often as once in six months, and oftener if needed. The result of such examination, under oath, shall be certified in writing to the inspector for the district within thirty (30) days thereafter.

Section 2. It shall not be lawful to place any boiler or boilers, for the purpose of generating steam, under nor nearer than one hundred (100) feet to any coal breaker or other structure in which persons

are employed in the preparation of coal: Provided, That this section shall not apply to boilers or breakers already erected.

Section 3. Each nest of boilers shall be provided with a safety valve of sufficient area for the steam to escape and with weights or springs properly adjusted.

Section 4. Every boiler house shall be provided with a steam gauge properly connected with the boilers, to indicate the steam pressure, and another steam gauge shall be attached to the steam pipe in the engine house and placed in such position that the engineer or fireman can readily examine them and see what pressure is carried. Such steam gauges shall be kept in good order, tested and adjusted as often as once in every six months and their condition reported to the inspector in the same manner as the report of boiler inspection.

Section 5. All machinery used in or about the mines and collieries, and especially in breakers, such as engines, rollers, wheels, screens, shafting and belting shall be protected by covering or railing so as to prevent persons from inadvertently walking against or falling upon the same. The sides of stairs, trestles and dangerous plank walks in and around the collieries shall be provided with hand and guard railing to prevent persons from falling over their sides. This section shall not forbid the temporary removal of a fence, guard rail or covering for the purpose of repairs or other operations, if proper precautions are used, and the fence, guard rail or covering is replaced immediately thereafter.

Section 6. A sober and competent person, not under eighteen (18) years of age, shall be engaged to run the breaker engine and he shall attend to said engine while the machinery is in motion.

Section 7. A signal apparatus shall be established at important points in every breaker so that in case of an accident the engineer can be promptly notified to stop the machinery.

Section 8. No person under fifteen (15) years of age shall be appointed to oil the machinery, and no person shall oil dangerous parts of such machinery while it is in motion.

Section 9. No person shall play with, loiter around or interfere with any machinery in or about any mine or colliery.

Section 10. Failure to comply with the provisions of this article shall be deemed an offense against this act.

## ARTICLE VI.

## Wash Houses.

Section 1. It shall be the duty of the owner, operator or superintendent of each mine or colliery, at the request in writing of twenty or more men employed in any of the mines, to provide a suitable building, not an engine or boiler house, which shall be convenient to

the principal entrance of such mine, for the use of the persons employed therein for the purpose of washing themselves and changing their clothes when entering the mine and returning therefrom. The said building shall be maintained in good order, be properly lighted and heated, and supplied with pure cold and warm water, and shall be provided with facilities for persons to wash. If any person or persons shall neglect or fail to comply with the provisions of this article, or maliciously injure or destroy, or cause to be injured or destroyed, the said building, or any part thereof, or any of the appliances or fittings used for supplying light, heat and water therein, or doing any act tending to the injury or destruction thereof, he or they shall be deemed guilty of an offense against this act.

### ARTICLE VII.

### Ambulances and Stretchers.

Section 1. The owner, operator or superintendent of every mine or colliery, except as hereinafter provided, shall provide and keep at such mine or colliery an ambulance and also at least two (2) stretchers, for the purpose of conveying to their places of abode, any person or persons who may be injured while in the discharge of his or their work at such mine or colliery.

Section 2. The said ambulance shall be constructed upon good, substantial and easy springs. It shall be covered and closed and shall have windows on the sides or ends. It shall be of sufficient size to convey at least two (2) injured persons with two (2) attendants at one time, and shall be provided with spring mattresses or other comfortable bedding to be placed on roller frames, together with sufficient covering and protection and convenient movement of the injured. It shall also be provided with seats for the attendants. The stretchers shall be constructed of such material and in such manner as to afford the greatest ease and comfort in the carriage of the injured person.

Section 3. Whenever any person or persons employed in or about a mine or colliery shall receive such injury by accident or otherwise, while so employed, as would render him or them unable to walk to his or their place of abode, the owner, operator or superintendent of such mine or colliery shall immediately cause such person or persons to be removed to his or their place of abode or to an hospital as the case may require.

Section 4. It is provided, however, that the owner, operator or superintendent of any mine or colliery shall be excepted from the requirements of an ambulance, as aforesaid, if the places of abode of all the workmen at such mine or colliery be within a radius of a half mile from the principal entrance to such mine.

Section 5. It is provided further, that where two or more mines or collieries are located within one mile of each other, or the ambulance is located within one mile of each colliery, but one ambulance, as aforesaid, shall be required, if the said mines or collieries have ready and quick means of communication, one with the other, by telegraph or telephone.

Section 6. An ambulance, as aforesaid, shall not be required at any mine or colliery at which less than twenty (20) persons are employed.

Section 7. In case the distance from any mine or colliery to the place of abode of the person injured, is such as to permit his conveyance to his home or to an hospital more quickly and conveniently by railway, such mode of conveyance shall be permitted, but in such case the conveyance must be under cover and the comfort of the injured person must be provided for.

ARTICLE VIII.

Certified Mine Foremen.

Section 1. It shall not be lawful, neither shall it be permitted, for any person or persons to act as mine foreman or assistant mine foreman of any coal mines or colliery, unless they are registered as a holder of a certificate of qualification or service under this act.

Section 2. Certificates of qualification to mine foremen and assistant mine foremen shall be granted by the Secretary of Internal Affairs to every applicant who may be reported by the examiners, as hereinafter provided, as having passed a satisfactory examination and as having given satisfactory evidence of at least five years' practical experience as a miner, and of good conduct, capability and sobriety.

The certificate shall be in manner and form as shall be prescribed by the Secretary of Internal Affairs, and a record of all certificates issued shall be kept in his department.

Section 3. For the purpose of examination of candidates for such certificates, a board of examiners shall be appointed in each of the inspection districts provided for by this act. The said board shall consist of the district inspector of mines, two (2) practical miners and one owner, operator or superintendent of a mine. The said inspector shall act ex-officio, and the said engineer and owner, operator or superintendent shall be appointed in like manner and at the same time as the boards of examiners for candidates for mine inspectorship under this act are now appointed. The said board shall act as such for the period of one year from the date of their appointment. Meetings of the board may be held at any time, and they may make such rules and conduct such examinations as in their judgment may seem proper for the purpose of such examinations. The said board

shall report their action to the Secretary of Internal Affairs, and at least three (3) of the members thereof shall certify to the qualification of each candidate who has passed such examination. The traveling expenses of the members of such board to and from their place of meeting, together with the sum of five dollars per day each to the said two (2) practical miners and owner, operator or superintendent, members of each board, for each day they are actually engaged therein, not exceeding ten (10) days in all, during the year, shall be paid by the Commonwealth on an order of the Auditor General drawn on the State Treasurer upon the certificate of the mine inspector, member of such board.

Section 4. Certificates of qualification to mine foreman and assistant mine foreman shall be granted by the Secretary of Internal Affairs to every applicant who may be reported by the examiners, as heretofore provided, as having passed a satisfactory examination and as having given satisfactory evidence of at least five (5) years' practical experience as a miner, and of good conduct, capability and sobriety. The certificate shall be in manner and form as shall be prescribed by the Secretary of Internal Affairs, and a record of all certificates issued shall be kept in the department. Certificates of qualification and certificate of service shall contain the full name, age and place of birth of the applicant, as also the length and nature of his previous service in or about the mines.

Section 5. Before certificate as aforesaid shall be granted applicants for same shall pay to the Secretary of Internal Affairs the following fee, namely:

For examination, one dollar; for registration of certificate, one dollar, for certificate, one dollar. All fees so received shall be covered into the treasury of the Commonwealth.

Section 6. No mines shall be operated for a longer period than thirty days without the supervision of a mine foreman. In case any mine is worked a longer period than thirty (30) days without such certified mine foreman, the owner, operator or superintendent thereof shall be subject to a penalty of twenty dollars per day for each day over the said thirty (30) days during which the said mine is operated.

Section 7. In case of the loss or destruction of a certificate the Secretary of Internal Affairs may supply a copy thereof to the person losing the same upon the payment of the sum of fifty (50) cents: Provided, It shall be shown to the satisfaction of the Secretary that the loss has actually occurred.

Section 8. If any person or persons shall forge or counterfeit a certificate or knowingly make or cause to be made any false statement in any certificate under this act, or in any official copy of the same, or shall urge others to do so, or shall utter or use any such forged or

false certificate, or unofficial copy thereof, or shall make, give, utter, produce or make use of any false declaration, representation or statement in any such certificate or copy thereof, or any document containing the same, he or they shall be guilty of a misdemeanor, and upon conviction thereof, shall be fined two hundred dollars, or imprisoned for a term not exceeding one (1) year, or both, at the discretion of the court trying the case.

Section 9. And no person shall be permitted to act as fire boss in any coal mine or colliery, except he has had five (5) years' practical experience in mines as a miner, three (3) of which he shall have as a miner wherein noxious and explosive gases are evolved, and the said fire boss shall certify to the same before entering upon his duties, before an alderman, justice of the peace or other person authorized to administer oaths, and a copy of said deposition shall be filed with the district inspector of mines wherein said person is employed.

## ARTICLE IX.

### Employment of Boys and Females.

Section 1. No boy under the age of fourteen (14) years, and no woman or girl of any age, shall be employed or permitted to be in any mine for the purpose of employment therein. Nor shall a boy under the age of twelve years or a woman or girl of any age, be employed or permitted to be in or about the outside structures or workings of a colliery for the purpose of employment, but it is provided, however, that this prohibition shall not affect the employment of a boy or female of suitable age in an office or in the performance of clerical work at a colliery.

Section 2. When an employer is in doubt as to the age of any boy or youth applying for employment in or about a mine or colliery, he shall demand and receive proof of the said lawful employment age of such boy or youth, by certificate from the parent or guardian, before said boy or youth shall be employed.

Section 3. If any person or persons contravene or fail to comply with the provisions of this act in respect to the employment of boys, young male persons or females, or if he or they shall connive with or permit others to contravene or fail to comply with said provisions, or if a parent or guardian of a boy or young male person make or give a false certificate of the age of such boy or young male person, or knowingly do or perform any other act for the purpose of securing employment for a boy or young male person under the lawful employment age and in contravention of the provisions of this act, he or they shall be guilty of an offense against this act.

ARTICLE X.

## Ventilation.

Section 1. The owner, operator or superintendent of every mine shall provide and maintain a constant and adequate supply of pure air for the same, as hereinafter provided.

Section 2. It shall not be lawful to use a furnace for the purpose of ventilating any mine wherein explosive gases are generated.

Section 3. The minimum quantity of air thus produced, shall not be less than two hundred (200) cubic feet per minute for each and every person employed in any mine, and as much more as the circumstances may require.

Section 4. The ventilating currents shall be conducted and circulated to and along the face of each and every working place throughout the entire mine, in sufficient quantities to dilute, render harmless and sweep away smoke and noxious or dangerous gases, to such an extent that all working places and traveling roads shall be in a safe and fit state to work and travel therein.

Section 5. All worked out or abandoned parts of a mine in operation, so far as practicable, shall be kept free of dangerous bodies of gases or water, and if found impracticable to keep the entire mine free from an accumulation of gases or water, the mine inspector must be immediately notified.

Section 6. Every mine employing more than seventy-five (75) persons must be divided into two or more districts. Each district shall be provided with a separate split of pure air and the ventilation shall be so arranged, that not more than seventy-five persons shall be employed at the same time in any one current or split of air.

The inlet and return air passages for any particular district must be separated by a pillar of coal or stone, if the thickness and dip of the vein will permit, except where it is necessary to cut through said dividing pillar for the purposes of ventilation, traffic or drainage.

Section 7. All air passages shall be of sufficient area to allow the free passage of not less than two hundred (200) cubic feet of air per minute for every person working therein; and in no case, in mines generating explosive gases, shall the velocity exceed four hundred and fifty (450) lineal feet per minute, in any opening through which the air currents pass, if gauze safety lamps are used, except in the main inlet or outlet air ways.

Section 8. All cross-cuts connecting the main inlet and outlet air passages of every district, when it becomes necessary to close them permanently, shall be substantially closed with brick or other suitable building material, laid in mortar or cement whenever practicable, but in no case shall said air stoppings be constructed of plank except for temporary purposes.

Section 9. All doors used in assisting or in any way affecting the ventilation shall be so hung and adjusted that they will close automatically.

Section 10. All main doors shall have an attendant whose constant duty it shall be to open them for transportation and travel and prevent them from standing open longer than is necessary for persons or cars to pass through.

Section 11. All main doors shall be so placed that when one door is open, another, which has the same effect upon the same current, shall be and remain closed and thus prevent any temporary stoppage of the air current.

Section 12. An extra main door shall be so placed and kept standing open, so as to be out of reach of accident, and so fixed that it can be at once closed in the event of an accident to the doors in use.

Section 13. The frame work of such main doors shall be substantially secured in stone or brick, laid in mortar or cement unless otherwise permitted in writing by the inspector.

Section 14. All permanent air bridges shall be substantially built of such material and such strength as the circumstances may require.

Section 15. The quantities of air in circulation shall be ascertained with an anemometer or other efficient instrument; such measurements shall be made by the inside foreman or his assistant once a week at the inlet and outlet airways, also at or near the face of each gangway and at the nearest cross-heading to the face of each gangway and at the nearest cross-heading to the face of the inside and outside chamber or breast where men are employed, and the headings shall not be driven more than sixty (60) feet from the face of each chamber or breast and shall be entered in the colliery report book.

Section 16. A report of these air measurements shall be sent to the inspector before the twelfth day of each month, for the preceding month, together with a statement of the number of persons employed in each district.

Section 17. All ventilators used at mines shall be provided with recording instruments by which the speed of the ventilators or the ventilating pressure shall be registered for each hour, and such data shall be preserved at the colliery for future reference, for a period of three months.

Section 18. Any person or persons who shall neglect or fail to comply with the provisions of this article, or who shall make any false report in regard to air measurements, shall be guilty of an offense against this act.

ARTICLE XI.

Props and Timbers.

Section 1. It shall be the duty of the owner, operator, superintendent or mine foreman of every mine to furnish to the miners all props, ties, rails and timbers necessary for the safe mining of coal and for the protection of the lives of the workmen. Such props, ties, rails and timbers shall be suitably prepared and shall be delivered to the workmen as near to their working places as they can be conveyed in ordinary mine cars, free of charge.

Section 2. Every workman in want of props, ties, rails or timbers shall notify the mine foreman or his assistant of the fact at least one day in advance, giving the length of the props or timber required; and in case of danger from loose roof or sides, he shall not continue to cut or load coal until the said props and timber have been properly furnished and the place made secure.

Section 3. A failure to comply with the provisions of this article shall be deemed an offense against this act, and shall be taken to be negligence per se on the part of the owner, operator, superintendent or mine foreman, as the case may be, of such mine, in action for the recovery of damages for accidents resulting from the insufficient propping of such mine, through failure to furnish the necessary props or timbers.

ARTICLE XII.

General Rules.

The following general rules shall be observed in every mine to which this act applies:

Rule 1. The owner, operator or superintendent of a mine or colliery shall use every precaution to ensure the safety of the workmen in all cases, whether provided for in this act or not, and he shall place the underground workings thereof, and all that is related to the same, under the charge and daily supervision of a competent person who shall be called "mine foreman."

Rule 2. Whenever a mine foreman cannot personally carry out the provisions of this act so far as they pertain to him, the owner, operator or superintendent shall authorize him to employ a sufficient number of competent persons to act as his assistants, who shall be subject to his orders.

Rule 3. The mine foreman shall have charge of all matters pertaining to ventilation, and the speed of the ventilators shall be particularly under his charge and direction; and any superintendent who shall cause the mine foreman to disregard the provisions of this act shall be amenable in the same manner as the mine foreman.

Rule 4. All accessible parts of an abandoned portion of a mine in which explosive gases have been found, shall be carefully examined

by the mine foreman or his assistants at least once a week, and all danger found existing therein shall be immediately removed. A report of said examination shall be recorded in a book kept at the colliery for that purpose and signed by the person making the same.

Rule 5. In mines generating explosive gases, the mine foreman or his assistant shall make a careful examination every morning of all working places and traveling roads and all other places which might endanger the safety of the workmen, before the workmen shall enter the mine, and such examination shall be made with a safety lamp within three (3) hours at most, before time for commencing work, and a workman shall not enter the mine or his working place until the said mine or part thereof and working place are reported to be safe. Every report shall be recorded without delay in a book which shall be kept at the colliery for the purpose and shall be signed by the person making the examination.

Rule 6. The person who makes said examination shall establish proof of the same by marking plainly the date thereof at the face of each working place and all other places examined.

Rule 7. A station or stations shall be established at the entrance to each mine or different parts of each mine, as the case may require, and a workman shall not pass beyond any such station until the mine or part of the mine beyond the same has been inspected and reported to be safe. It shall be the duty of the fire boss to remain at the danger station until relieved by some person authorized by himself or the mine foreman, who shall stand guard until said mine or part of mine shall be reported safe, and he shall not let any person pass without permission from the fire boss.

Rule 8. If at any time it is found by the person for the time being in charge of the mine or any part thereof, that by reason of noxious gases prevailing in such mine or such part thereof, or of any cause whatever the mine or the said part is dangerous, every precaution shall be used to ensure the safety of the workmen; and every workman, except such persons as may be required to remove the danger, shall be withdrawn from the mine, or such part thereof as is so found dangerous, until the said mine or said part thereof is examined by a competent person and reported by him to be safe.

Rule 9. In every working approaching any place where there is likely to be accumulation of explosive gases, or in any working in which danger is imminent from explosive gases, no light or fire other than a locked safety lamp shall be allowed or used. Whenever safety lamps are required in any mine they shall be the property of the owner of said mine, and a competent person, who shall be appointed for the purpose, shall examine every safety lamp immediately before it is taken into the workings for use, and ascertain it to be clean, safe and securely locked, and safety lamps shall not be used until they

have been so examined and found safe, clean and securely locked, unless permission be first given by the mine foreman to have the lamps used unlocked.

Rule 10. No one, except a duly authorized person, shall have in his possession a key or any other contrivance for the purpose of unlocking any safety lamp in any mine where locked lamps are used. No lucifer matches or any other apparatus for striking light shall be taken into said mine or parts thereof.

Rule 11. No blast shall be fired in any mine where locked safety lamps are used except by permission of the mine foreman or his assistants, and before a blast is fired, the person in charge must examine the place and adjoining places and satisfy himself that it is safe to fire such blast before such permission is given.

Rule 12. The mine foreman or his assistant shall visit and examine every working place in the mine at least once every alternate day, while the men of such place are or should be at work, and shall direct that each and every working place is properly secured by props or timber, and that safety in all respects is assured by directing that all loose coal or rock shall be pulled down or secured, and that no person shall be permitted to work in an unsafe place unless it be for the purpose of making it secure.

Rule 13. The mine foreman, or some other competent person or persons to be designated by him, shall examine at least once every day all slopes, shafts, main roads, traveling ways, signal apparatus, pulleys and timbering and see that they are in safe and efficient working condition.

Rule 14. Any person having charge of a working place in any mine shall keep the roof and sides thereof properly secured by timber or otherwise so as to prevent such roof and sides from falling, and he shall not do any work or permit any work to be done under loose or dangerous material except for the purpose of securing the same.

Rule 15. Whenever a place is likely to contain a dangerous accumulation of water, the working approaching such place shall not not exceed twelve (12) feet in width, and there shall be constantly kept, at a distance of not less than twenty (20) feet in advance, at least one (1) bore hole near the center of the working and sufficient flank bore holes on each side.

Rule 16. No person shall ride upon or against any loaded car, cage or gun-boat in any shaft, slope or plane in or about a mine or colliery.

Rule 17. Not more than ten (10) persons shall be hoisted or lowered at any one time in any shaft or slope, and whenever five persons shall arrive at the bottom of any shaft or slope in which persons are regularly hoisted or lowered they shall be furnished with an empty car or cage and be hoisted, except however, in mines where there is

provided a traveling way having an average pitch of fifteen (15) degrees or less and not more than one thousand (1,000) feet in length. This, however, shall not prohibit the hoisting or lowering of twenty (20) persons at one time on slopes where two (2) or more loaded cars are regularly hoisted: Provided, That not less than thirty (30) workmen working therein, make such request in writing, to the inspector of the district, and if, in his judgment, the hoisting appliances in every respect are of sufficient strength, he may comply with the request of the workmen.

Provided, That in any coal mine or colliery where the hoisting appliances are not of sufficient strength to hoist or lower the number of persons named, he shall have the power to reduce the number of persons to be hoisted or lowered.

Rule 18. An engineer placed in charge of an engine whereby persons are hoisted or lowered in any mine, shall be a sober and competent person of not less than twenty-one (21) years of age.

Rule 19. Every engineer shall work his engine slowly and with great care when any person is being lowered or hoisted in a shaft or slope and no one shall interfere with or intimidate him while in the discharge of his duties.

Rule 20. An engineer who has charge of the hoisting machinery by which persons are lowered or hoisted in a mine, shall be in constant attendance for that purpose during the whole time any person or persons are below ground, and he shall not allow any person or persons, except such as may be deputed by the owner, operator or superintendent, to handle or meddle with the engine under his charge or any part of its machinery.

Rule 21. When any person is about to descend or ascend a shaft or slope, the headman or footman, as the case may be, shall inform the engineer by signal or otherwise of the fact, and the engineer shall return a signal before moving or starting the engine. In the absence of a headman or footman the person or persons about to descend or ascend shall give and receive the signals in the same manner.

Rule 22. The owner, operator or superintendent of a colliery shall place a competent person to be called "outside foreman," in charge of the breaker and the outside work of such colliery and who shall direct, and as far as practicable, see that the provisions of this act are complied with in respect to the breaker, outside machinery, ropes, cages and all other things pertaining to the outside work, unless otherwise provided for in this act.

Rule 23. In all coal breakers where the coal dust is so dense as to be injurious to the health of persons employed therein, the owner, operator or superintendent of said breaker shall, upon the request of the inspector, immediately adopt measures for the removal of the dust, as far as practicable.

Rule 24. Any miner or other workman who shall discover anything wrong with the ventilating current or with the condition of the roof, side, timber or roadway, or with any other part of the mine in general, such as would lead him to suspect danger to himself or his fellow workmen or to the property of his employer, shall immediately report the same to the mine foreman or other person, for the time being in charge of that portion of the mine.

Rule 25. Any person or persons who shall knowingly or wilfully damage, or without proper authority, remove or render useless any fencing, means of signaling, apparatus, instrument or machine, or shall throw open or obstruct any airway, or open a ventilating door and not have the same closed, or enter a place in or about a mine against caution, or carry fire, open lights or matches in places where safety lamps are used, or handle without proper authority, or disturb any machinery or cars, or do any other act or thing whereby the lives or health of persons or the security of the property in or about a mine or colliery are endangered, shall be guilty of an offense against this act.

Rule 26. Gunpowder or any other explosive shall not be stored in a mine, and a workman shall not have at any time in any one place, more than one keg or box containing twenty-five (25) pounds, unless more is necessary for a person to accomplish one day's work.

Rule 27. Every person who has gunpowder or other explosive in a mine, shall keep it in a wooden or metallic box securely locked, and such box shall be kept at least ten (10) feet from the tracks in all cases where room at such a distance is available.

Rule 28. Whenever a workman shall open a box containing explosive or while in any manner handling the same, he shall first place his lamp not less than five (5) feet from such explosive and in such a position that the air current cannot convey sparks to it, and a workman shall not approach nearer than five (5) feet to an open box containing powder, with a lamp, lighted pipe or any other thing containing fire.

Rule 29. When high explosives other than gunpowder are used in any mine, the manner of storing, keeping, moving, charging and firing or in any manner using such explosives, shall be in accordance with special rules as furnished by the manufacturers of the same. The said rules shall be endorsed with his or their official signature and shall be approved by the owner, operator or superintendent of the mine in which such explosives are used.

Rule 30. In charging holes for blasting in slate or rock in any mine, no iron or steel-pointed needle shall be used, and a tight cartridge shall not be rammed into a hole in coal, slate or rock with an iron or steel tamping bar, unless the end of the tamping bar is tipped with at least six (6) inches of copper or other soft metal.

Rule 31. A charge of powder or any other explosive in slate or rock which has missed fire shall not be withdrawn or the hole reopened.

Rule 32. A miner or other person who is about to explode a blast by the use of patent or other squibs or matches, shall not shorten the match, nor saturate it with mineral oil, nor turn it down when placed in the hole, nor ignite it except at its extreme end, nor do anything tending to shorten the time the match will burn.

Rule 33. When a workman is about to fire a blast he shall be careful to notify all persons who may be in danger therefrom, and shall give sufficient alarm before and after igniting the match so that any person or persons who may be approaching shall be warned of the danger.

Rule 34. Before commencing work and also after the firing of every blast, the miner working a breast or any other place in a mine, shall enter such breast or place to examine and ascertain its condition, and his laborer or assistant shall not go to the face of such breast or place until the miner has examined the same and found it to be safe.

Rule 35. No person shall be employed to blast coal or rock unless the mine foreman is satisfied that such person is qualified, by experience and judgment, to perform the work with ordinary safety.

Rule 36. A person who is not a practical miner shall not charge or fire a blast in the absence of an experienced miner, unless he has given satisfactory evidence of his ability to do so with safety, and has obtained permission from the mine foreman or person in charge.

Rule 37. An accumulation of gas in mines shall not be removed by brushing where it is practicable to remove it by brattice.

Rule 38. When gases ignited by blast or otherwise, the person igniting the same shall immediately extinguish it, if possible, and notify the mine foreman or his assistant of the fact, and workmen must see that no gas blowers are left burning upon leaving their working places.

Rule 39. Every fireman in charge of a boiler or boilers for the generation of steam, shall keep a constant watch of the same. He shall see that the steam pressure does not at any time exceed the limit allowed by the outside foreman or superintendent. He shall frequently try the safety valve, and shall not increase the weight on the same. He shall maintain a proper depth of water in each boiler, and if anything should happen to prevent this, he shall report the same without delay to the foreman, for the time being in charge, and take such other action as may under the particular circumstances be necessary for the protection of life and preservation of property.

Rule 40. At every shaft or slope in which provision is made in this act for lowering and hoisting persons, a headman and footman

shall be designated by the superintendent or foreman to be at their proper places from the time that persons begin to descend, until all the persons who may be at the bottom of said shaft or slope when quitting work shall be hoisted. Such headman and footman shall personally attend to the signals and see that the provisions of this act, in respect to lowering and hoisting persons in shafts or slopes, shall be complied with.

Rule 41. No person, except the man giving the signal, shall jump on a car, cage or gunboat after the signal to start has been given, and if any person should enter a car, cage or gunboat in excess of the lawful number the headman or footman shall notify him of the fact and request him to get off, which request must be immediately complied with. Any violation of this rule must be reported promptly to the mine foreman.

Rule 42. An empty trip shall be hoisted in any shaft or slope where the engine has been standing idle for an hour or more, before men are hoisted or lowered in said shafts or slopes, and no person or persons shall ascend any shaft or slope when working on the night turn, until one trip shall first be hoisted therein.

Rule 43. Every passage-way used by persons in any mines and also used for transportation of coal or other material, shall be made of sufficient width to permit persons to pass moving cars with safety, but if found impracticable to make any passage-way of sufficient width, then holes of ample dimensions, and not more than one hundred and fifty (150) feet apart, shall be made on one side of said passage-way. The said passage-way and safety holes shall be kept free from obstructions and shall be well drained; the roof and sides of the same shall be made secure.

Rule 44. When locomotives are used in any mine their speed shall not exceed six (6) miles per hour, and an efficient alarm shall be provided and attached to the front end of every train of cars pushed by a locomotive in any mine or part of a mine.

Rule 45. Locomotives propelled by steam, if using fire, shall not be used in any passage-way which is also used as an in-take air-way to any mine or part of a mine where persons are employed, unless there be a sufficient quantity of air circulating therein to maintain a healthy atmosphere.

Rule 46. No person shall couple or uncouple loaded or empty cars while the same are in motion: Provided however, That this shall not apply to the top or bottom men of slopes, planes or shafts.

Rule 47. When cars are run on gravity roads by breaks or sprags, the runner shall only ride on the rear end of the last car, and when said cars are run by sprags, a space of not less than two (2) feet from the body of the car shall be made on one or both sides of the track, wherever it may be necessary for the runner to pass along the side

of the moving car or cars, and said space or passage-way shall always be kept free from obstructions.

Rule 48. No miner or laborer shall run cars out of any breast or chamber or on any gravity road unless he is a suitable person, employed by the mine foreman for that particular work; and no person shall be employed by any mine foreman to perform such work, under the age of sixteen (16) years.

Rule 49. Safety holes shall be made at the bottom of all slopes and planes and be kept free from obstruction to enable the footman to escape readily in case of danger.

Rule 50. Safety blocks or some other device for the purpose of preventing cars from falling into a shaft or running away on a slope or plane, shall be placed at or near the head of every shaft, slope or plane, and said safety blocks or other device must be maintained in good working order.

Rule 51. No person shall travel on any gravity train while cars are being hoisted or lowered thereon. Whenever ten (10) persons arrive at the bottom or top of any plane on which it is necessary for men to travel, traffic thereon shall be suspended for a period of time long enough to permit them to reach the top or bottom of said plane.

Rule 52. No mine cars shall be used in any mine unless the bumpers are of sufficient length and width to keep the bodies of said cars separated by not less than twelve (12) inches when the cars stand on a straight level road and the bumpers touch each other.

Rule 53. It shall be the duty of the owner, operator or superintendent of any or all coal breakers, to have them properly heated in order to prevent injury to the health of persons employed therein.

Rule 54. For the purpose of making known the rules and the provisions of this act to all persons employed in or about such mine or colliery to which this act applies, an abstract of the act and rules shall be posted up in legible characters in some conspicuous place or places at or near the mine or colliery, where they may be conveniently read by the persons employed, and so often as the same becomes obliterated or destroyed the owner, operator or superintendent shall cause them to be renewed with all reasonable dispatch. Any person who pulls down, injures or defaces such abstract of the act or rules when posted up in pursuance to the provisions of this act, shall be guilty of an offense against this act.

Rule 55. No person or persons working in any coal mine or colliery shall cut any props or timbers while the same are in position to support the roof or sides. When it becomes necessary to remove any of the said props or timbers for the purpose of mining coal that may be supported by the same, to dislodge any of the said props or timbers, it must be done by blasting.

Rule 56. It shall not be lawful for any mine foreman or superintendent of any mine or colliery to employ any person who is not com-

petent to understand the regulations of any mine evolving explosive gases: Provided, That this rule will not apply to a section of mine, free from the said explosive gases.

Rule 57. Any superintendent or mine foreman who prevents the footman from giving an empty car or cage to the number of men designated in a former rule, shall, upon information by any person engaged in the mines, given the mine inspector, be fined the sum of fifty dollars for each offense.

Rule 58. Every person who fails to comply with any of the foregoing rules or any of the provisions of this article, shall be guilty of an offense against this act.

## ARTICLE XIII.

### Inquests.

Section 1. Whenever loss of life to a miner or other employe occurs in or about a mine or colliery, notice thereof shall be given promptly to the inspector of mines for the district in which the accident occurred, by the mine foreman or outside foreman or other person having immediate charge of the work at the time of the accident; and when death results from personal injury such notice shall be given promptly after the knowledge of death comes to the said foreman or person in charge.

Section 2. Whenever loss of life occurs or whenever the lives of persons employed in a mine or at a colliery are in danger from any accident, the inspector of mines shall visit the scene of the accident as soon as possible thereafter and offer such suggestions, as in his judgment shall be necessary, to protect the lives and secure the safety of the persons employed. In case of death from such accident, and after examination he finds it necessary that a coroner's inquest shall be held, he shall notify the coroner to hold such inquest without delay, and if no such inquest be held by the coroner within twenty-four (24) hours after such notice, the inspector shall institute a further and fuller examination of such accident, and for this purpose he shall have power to compel the attendance of witnesses at such examination and to administer oaths and affirmations to persons testifying thereat. The inspector shall make a record of all such investigations and accidents, which record shall be preserved in his office. The costs of such investigation shall be paid by the county in which the accident occurred in like manner as costs of inquests held by coroners or justices of the peace are now paid.

Section 3. An inquest held by the coroner upon the body of a person killed by explosion or other accident, shall be adjourned by the coroner if the inspector of mines be not present to watch the proceedings, and the coroner in such case shall notify the inspector, in

writing, of such adjourned inquest, and the time and place of holding the same, at least three (3) days previous thereto.

Section 4. Due notice of an intended inquest to be held by the coroner, shall be given by the coroner to the inspector, and at any such inquest the inspector shall have the right to examine witnesses.

Section 5. If, at any inquest held over the body or bodies of persons whose death was caused by an accident in or about a mine or colliery, the inspector be not present, and it is shown by the evidence given at the inquest that the accident was caused by neglect or by any defect in or about the mine or colliery, which in the judgment of the jury, requires a remedy, the coroner shall send notice in writing to said inspector of such neglect or default.

Section 6. No person who is interested personally, nor a person employed in the mine or at a colliery in or at which loss of life has occurred by accident, shall be qualified to serve on a jury empaneled on the inquest, and a constable or other officer shall not summons such a person so qualified as juror, but the coroner shall empanel a majority of the jury from miners who are qualified to judge of the nature of the accident; every person who fails to comply with the provisions of this article shall be guilty of an offense against this act.

## ARTICLE XIV.

### Returns, Notices, Et Cetera.

Section 1. Notices of death or serious injuries resulting from accidents in or about mines or collieries, shall be made to the inspector of mines, in writng, and shall specify the name, age and occupation of the person killed or injured, and also the nature and character of the accident and of the injury caused thereby.

Section 2. The owner, operator or superintendent of a mine or colliery, shall, without delay, give notice to the inspector of the district in which said mine or colliery is situated in any or all of the following cases:

First. Where any working is commenced for the purpose of opening a new slope or mine to which this act applies.

Second. Where any mine is abandoned or the workings thereof discontinued.

Third. Where the working of any mine is recommenced after any abandonment or discontinuance for a period exceeding three months.

Fourth. Where any new coal breaker is completed and work commenced therein for the purpose of preparing coal for market.

Fifth. Where the pillars of a mine are to be removed or robbed.

Sixth. Where a squeeze or crush or any other cause or change may seem to affect the safety of persons employed in any mine, or where fire occurs or a dangerous body of gas is found in any mine.

Section 3. On or before the first day of February in each year, the owner, operator or superintendent of every mine or colliery, shall send to the inspector of the district, a correct report specifying with respect to the year ending December thirty-first, previously, the name of the operator and officials of the mine, with his postoffice address; the quantity of coal mined, the amount of powder or other explosives consumed; the number of persons employed above and below ground in or about such colliery, classifying the persons so employed. The report shall be in such form as may be from time to time prescribed by the inspectors of the district. Blank forms for said reports shall be furnished by the Commonwealth.

ARTICLE XV.

## Injunctions.

Section 1. Upon application of the inspector of mines of the proper district, acting in behalf of the Commonwealth, any of the courts of law or equity having jurisdiction where the mine or colliery proceeded against is situated, whether any proceedings have or have not been taken, shall prohibit, by injunction or otherwise, the working of any mine or colliery in which any person is employed or is permitted to be for the purpose of working in contravention of the provisions of this act, and may award such costs in the matter of the injunctions or other proceedings as the court may think just; but this section shall be without prejudice to any other remedy permitted by law for enforcing the provisions of this act. Written notice of the intention to apply for such injunction in respect to any mine or colliery, shall be made to the owner, operator or superintendent of such mine or colliery not less than twenty-four (24) hours before the application is made.

ARTICLE XVI.

## Arbitration.

Section 1. Whenever an inspector finds any mine or colliery or part thereof, or any matter, thing or practice connected with such mine, which in any respect thereof is not covered by or provided against by any provisions of this act or by any rule, to be dangerous or defective, or in his judgment tends to bodily injury to a person, he shall give notice thereof in writing to the owner, operator or superintendent of such mine or colliery, stating in such notice the particular matter or defect requiring remedy and may demand that the same be remedied; but the owner, operator or superintendent of said mine or colliery shall have the right to refer the demand of the inspector to a board of arbitration, and the matter shall then be arbitrated within forty-eight (48) hours of the time such complaint or demand be made. And the party against whom the award is given shall pay

all cost attending the case. The said board of arbitration shall be composed of three (3) persons, one of whom shall be chosen by the inspector, one by the said owner, operator or superintendent and a third by the two thus selected, and the decision of a majority of such board shall be final and binding in the matter.

### ARTICLE XVII.

### Penalties.

Section 1. Any judge of the court of quarter sessions of the peace of the county in which the mine or colliery, at which the offense, act or omission as hereinafter stated has occurred, is situated, is hereby authorized and required, upon the presentation to him of the affidavit of any citizen of the Commonwealth setting forth that the owner, operator or superintendent, or any other person employed in or about such mine or colliery had been negligently guilty of an offense against the provisions of this act, whereby a dangerous accident had resulted or might have resulted to any person or persons employed in such mine or colliery, to issue a warrant to the sheriff of said county directing him to cause such person or persons to be arrested and brought before said judge, who shall hear and determine the guilt or innocence of the person or persons so charged; and if convicted he or they shall be sentenced to pay a fine not exceeding five hundred dollars, in all cases not otherwise provided for in this act, or an imprisonment in the county jail for a period not exceeding three (3) months, or both, at the discretion of the court: Provided, That any defendant may waive trial before a judge as herein provided and at any time, at or before the time of such trial, demand a trial by a jury in the court of quarter sessions, in which case he may enter into a recognizance before said judge with such surety or sureties and in such sum as said judge may approve, conditioned for his appearance at the next court of quarter sessions to answer the charge against him and abide the orders of the court in the premises, meanwhile to be of good behavior and keep the peace, or in default of such recognizance to be committed to the county jail to await such trial.

Section 2. If any person shall feel himself aggrieved by such conviction and sentence before a judge as aforesaid, he may appeal therefrom subject to the following conditions, namely: The appellant shall, within seven days after the decree has been made, give notice to the prosecutor of his intention to appeal, and within the same time enter into a recognizance, with such surety or sureties and in such sum as shall be approved by said judge, conditioned to appear and try such appeal before the next court of quarter sessions of the peace and to abide the judgment of the court thereon and to pay

all such costs and penalties as may be there awarded, and upon the compliance with such conditions the judge shall release the appellant from custody pending the appeal.

Section 3. Nothing in this act shall prevent any person from being indicted or liable under any other act, to any higher penalty or punishment than is herein provided, and if the court before whom any such proceeding is had shall be of the opinion that proceedings ought to be taken against such persons under any other act, or otherwise, he may adjourn the case to enable such proceedings to be taken.

Section 4. All offenses under this act are declared to be misdemeanors and in default of payment of any penalty or cost by the party or parties sentenced to pay the same, he or they may be imprisoned for a period not exceeding three (3) months and not less than thirty (30) days.

Section 5. For any violation of duty by the mine inspector prescribed by this act, he shall be deemed guilty of a misdemeanor, and upon conviction, be sentenced to pay a fine of not more than three hundred dollars or be imprisoned for a period not exceeding three months, or either, or both, at the discretion of the court.

Section 6. All fines imposed under this act shall be paid into the county treasury for the use of the county.

Section 7. No conviction or acquittal under this act, in any complaint, shall be received in evidence upon the trial of any action for damages arising from the negligence of any owner, operator or superintendent or employe in any mine or colliery.

Section 8. That for any injury to person or property occasioned by any violation of this act or any failure to comply with its provisions by any owner, operator, superintendent, mine foreman or fire boss of any coal mine or colliery, a right of action shall accrue to the party injured against said owner or operator for any direct damages he may have sustained thereby; and in case of loss of life by reason of such neglect or failure aforesaid, a right of action shall accrue to the widow and lineal heirs of the person whose life shall be lost, for like recovery of damages for the injury they shall have sustained.

## ARTICLE XVIII.

### Definition of Terms.

In this act, unless the context otherwise requires, the term "coal mine or colliery" includes every operation and work, both under ground and above ground, used or to be used for the purpose of mining and preparing coal.

The term "workings" includes al the excavated parts of a mine, those abandoned as well as the places actually at work.

The term "mine" includes all underground workings and excavations and shafts, tunnels and other ways and openings; also all such

shafts, slopes, tunnels and other openings in course of being sunk or driven, together with all roads, appliances, machinery and materials connected with the same below the surface.

The term "shaft" means a vertical opening through the strata and which is or may be used for the purpose of ventilation or drainage or for hoisting men or material in connection with the mining of coal.

The term "slope" means any inclined way or opening used for the same purpose as a shaft.

The term "breaker" means the structure containing the machinery used for the preparation of coal.

The term "owners" and "operators" means any person or body corporate who is the immediate proprietor or lessee or occupier of any coal mine or colliery or any part thereof. The term "owner" does not include a person or body corporate who merely receives a royalty, rent or fine from a coal mine or colliery or part thereof, or is merely the proprietor of the mine subject to any lease, grant or license for the working or operating thereof, or is merely the owner of the soil and not interested in the minerals of the mine or any part thereof. But any "contractor" for the working of a mine or colliery or any part or district thereof, shall be subject to this act as an operator or owner, in like manner as if he were the owner.

The term "superintendent" means the person who shall have, on behalf of the owner, general supervision of one or more mines or collieries.

ARTICLE XIX.

All laws or parts of laws inconsistent or in conflict with the provisions of this act are hereby repealed.

Approved—The 2d day of June, A. D. 1891.

ROBT. E. PATTISON.

---

## AN ACT

Relating to bituminous coal mines and providing for the lives, health, safety and welfare of persons employed therein.

ARTICLE I.

### Survey—Maps and Plans.

Section 1. Be it enacted, &c., That the operator or superintendent of every bituminous coal mine shall make, or cause to be made by a competent mining engineer or surveyor, an accurate map or plan of such coal mine, not smaller than on a scale of two hundred feet to an inch, which map shall show as follows:

First. All measurements of said mine in feet or decimal parts thereof.

Second. All the openings, excavations, shafts, tunnels, slopes, planes, main-entries, cross-entries, rooms, et cetera, in proper numerical order in each opened strata of coal in said mine.

Third. By darts or arrows made thereon by a pen or pencil the direction of air currents in said mine.

Fourth. An accurate delineation of the boundary lines between said coal mine and all adjoining mines or coal lands, whether owned or operated by the same operator or other operator, and the relation and proximity of the workings of said mine to every other adjoining mine or coal lands.

Fifth. The elevation above mean tide at Sandy Hook of all tunnels, and entries, and of the face of working places adjacent to boundary lines at points not exceeding three hundred feet apart.

Sixth. The bearings and lengths of each tunnel or entry, and of the boundary or property lines. The said map or plan, or a true copy thereof, shall be kept in the general mine office by the said operator or superintendent for use of the mine inspectors and for the inspection of any person or persons working in said mine whenever said person or persons shall have cause to fear that any working place is becoming dangerous by reason of its proximity to other workings that may contain water or dangerous gas.

Section 2. At least once in every six months, or oftener if necessary, the operator or superintendent of each mine shall cause to be shown accurately on the map or plan said coal mine, all the excavations made therein during the time elapsing since such excavations were last shown upon said map or plan; and all parts of said mine which were worked out or abandoned during said elapsed period of time shall be clearly indicated by colorings on said map or plan, and whenever any of the workings or excavations of said coal mine have been driven to their destination, a correct measurement of all such workings or excavations shall be made promptly and recorded in a survey book prior to the removal of the pillars or any part of the same from such workings or excavations.

Section 3. The operator or superintendent of every coal mine shall, within six months after the passage of this act, furnish the mine inspector of the district in which said mine is located with a correct copy on tracing muslin or sun print, of the map or plan of said mine hereinbefore provided for. And the inspector of the district shall, at the end of each year or twice a year if he requires it, forward said map or plan to the proper person at any particular mine, whose duty it shall be to place or cause to be placed on said map or plan all extensions and worked out or abandoned parts of the mine during the preceding six or twelve months, as the case may be, and return the

same to the mine inspector within thirty days from the time of receiving it. The copies of the maps or plans of the several coal mines of each district as hereinbefore required to be furnished to the mine inspector shall remain in the care of the inspector of the district in which the said mines are situated, as official records, to be transferred by him to his successor in office; but it is provided that in no case shall any copy of the same be made without the consent of the operator or his agent.

Section 4. If any superintendent or operator of mines shall neglect or fail to furnish to the mine inspector any copies of maps or plans as hereinbefore required by this act, or if the mine inspector shall believe that any map or plan of any coal mine made or furnished in pursuance of the provisions of this act is materially inaccurate or imperfect, then, in either case, the mine inspector is hereby authorized to cause a correct survey and map or plan of said coal mine to be made at the expense of the operator thereof, the cost of which shall be recoverable from said operator as other debts are recoverable by law: Provided, however, That if the map or plan which may be claimed by the mine inspector to be inaccurate shall prove to be correct, then the Commonwealth shall be liable for the expense incurred by the mine inspector in causing to be made said test survey and map, and the cost thereof, ascertained by the Auditor General by proper vouchers and satisfactory proof, shall be paid by the State Treasurer upon warrants which the said Auditor General is hereby directed to draw for the same.

ARTICLE II.

Section 1. It shall not be lawful for the operator, superintendent or mine foreman of any bituminous coal mine to employ more than twenty persons within said coal mine, or permit more than twenty persons to be employed therein at any one time unless they are in communication with at least two available openings to the surface from each seam or stratum of coal worked in such mine, exclusive of the furnace upcast shaft or slope: But provided, That in any mine operated by shaft or slope and ventilated by a fan, if the air shaft shall be divided into two compartments, one of them may be used for an air-way and the other for the purpose of egress and ingress from and into said mine by the persons therein employed and the same shall be considered a compliance with the provisions of this section hereinbefore set forth. And there shall be cut out or around the side of every hoisting shaft, or driven through the solid strata at the bottom thereof, a traveling way not less than five feet high and three feet wide to enable persons to pass the shaft in going from one side of it to the other without passing over or under the cage or other hoisting apparatus.

Section 2. The shaft or outlet, other than the main shaft or outlet shall be separated from the main outlet and from the furnace shaft by natural strata at all points by a distance of not less than one hundred and fifty feet (except in all mines opened prior to June thirtieth, one thousand eight hundred and eighty-five, where such distances may be less, if in the judgment of the mine inspector one hundred and fifty feet is impracticable). If the mine be worked by drift, two openings exclusive of the furnace upcast shaft and not less than thirty feet apart, shall be required (except in drift mines opened prior to June thirtieth, one thousand eight hundred and eighty-five, where the mine inspector of the district shall deem the same impracticable). Where the two openings shall not have been provided as required hereinbefore by this act, the mine inspector shall cause the second to be made without delay; and in no case shall furnace ventilation be used where there is only one opening into the mine.

Section 3. Unless the mine inspector shall deem it impracticable, all mines shall have at least two entries or other passage ways, one of which shall lead from the main entrance and the other from the opening into the body of the mine, and said two passageways shall be kept well drained and in a safe condition for persons to travel therein, throughout their whole length so as to obtain, in cases of emergency, a second way for egress from the workings. No part of said workings shall at any time be driven more than three hundred feet in advance of the aforesaid passageways, except entries, airways or other narrow work, but should an opening to the surface be provided from the interior of the mine, the passageways aforesaid may be made and maintained therefrom into the working part of the mine, and this shall be deemed sufficient compliance with the provisions of this act relative thereto; said two passageways shall be separated by pillars of coal or other strata of sufficient strength and width.

Section 4. Where necessary to secure access to the two passageways required in section three of article two of this act in any slope mine where the coal seam inclines and has workings on both sides of said slope, there shall be provided an overcast for the use of persons working therein, the dimensions of which shall not be less than four feet wide and five feet high. Said overcast shall connect the workings on both sides of said slope and the intervening strata between the slope and the overcast shall be of sufficient strength and thickness at all points for its purpose: Provided, That if said overcast be substantially constructed of masonry or other incombustible material it shall be deemed sufficient.

Section 5. When the opening or outlet, other than the main opening, is made and does not exceed seventy-five feet in vertical depth, it shall be set apart exclusively for the purpose of ingress to or egress from the mine by any person or persons employed therein it shall be

kept in a safe and available condition and free from steam and dangerous gases, and all other obstructions, and if such opening is a shaft it shall be fitted with safe and convenient stairs with steps of an average tread of ten inches and nine inches rise, not less than two feet wide and to not exceed an angle of sixty degrees descent with landings of not less than eighteen inches wide and four feet long, at easy and convenient distances: Provided, That the requirements of this section shall not be applicable to stairways in use prior to June thirtieth, one thousand eight hundred and eighty-five, when in the judgment of the mine inspector, they are sufficiently safe and convenient. And water coming from the surface or out of the strata in the shaft shall be conducted away by rings, casing or otherwise and be prevented from falling upon persons who are ascending or descending the stairway of the shaft.

Section 6. Where any mine is operated by a shaft which exceeds seventy-five feet in vertical depth, the persons employed in said mine shall be lowered into and raised from said mine by means of machinery, and in any such mine the shaft, other than the main shaft, shall be supplied with safe and suitable machinery for hoisting and lowering persons, or with safe and convenient stairs for use in cases of emergency by persons employed in said mine: Provided, That any mine operated by two shafts, and where safe and suitable machinery is provided at both shafts for hoisting coal or persons, shall have sufficiently complied with the requirements of this section.

Section 7. At any mine, where one of the two openings required hereinbefore is a slope and is used as a traveling way, it shall not have a greater angle of descent than twenty degrees and may be of any depth.

Section 8. The machinery used for lowering or raising the employes into or out of the mine and the stairs used for ingress or egress, shall be kept in a safe condition, and inspected once each twenty-four hours by a competent person employed for that purpose. And such machinery and the method of its inspection shall be approved by the mine inspector of the district in which the mine is situated.

### ARTICLE III.

### Hoisting Machinery, Safety Catches, Signaling Apparatus, Et Cetera.

Section 1. The operator or superintendent shall provide and maintain, from the top to bottom of every shaft where persons are raised or lowered, a metal tube suitably adapted to the free passage of sound through which conversation may be held between persons at the top and bottom of said shaft, and also a means of signaling from the top to the bottom thereof, and shall provide every cage or gear carriage used for hoisting or lowering persons with a sufficient over-

head covering to protect those persons when using the same, and shall provide also for each said cage or carriage a safety catch approved by the mine inspector. And the said operator or superintendent shall see that flanges, with a clearance of not less than four inches, when the whole of the rope is wound on the drum, are attached to the sides of the drum of every machine that is used for lowering and hoisting persons in and out of the mine, and also that adequate brakes are attached to the drum. At all shafts safety gates, to be approved by the mine inspector of the district shall be so placed as to prevent persons from falling into the shaft.

Section 2. The main coupling chain attached to the socket of the wire rope shall be made of the best quality of iron and shall be tested by weights or otherwise to the satisfaction of the mine inspector of the district where the mine is located, and bridle chains shall be attached to the main hoisting rope above the socket, from the top cross-piece of the carriage or cage, so that no single chain shall be used for lowering or hoisting persons into or out of the mines.

Section 3. No greater number of persons shall be lowered or hoisted at any one time than may be permitted by the mine inspector of the district, and notice of the number so allowed to be lowered or hoisted at any one time shall be kept posted up by the operator or superintendent in conspicuous places at the top and bottom of the shaft, and the aforesaid notice shall be signed by the mine inspector of the district.

Section 4. All machinery about mines from which any accident would be liable to occur shall be properly fenced off by suitable guard railing.

ARTICLE IV.

Section 1. The operator or superintendent of every bituminous coal mine, whether shaft, slope or drift, shall provide and hereafter maintain ample means of ventilation for the circulation of air through the main-entries, cross-entries and all other working places to an extent that will dilute, carry off and render harmless the noxious or dangerous gases, generated in the mine, affording not less than one hundred cubic feet per minute for each and every person employed therein; but in a mine where fire damp has been detected the minimum shall be one hundred and fifty cubic feet per minute for each person employed therein, and as much more in either case as one or more of the mine inspectors may deem requisite.

Section 2. After May thirtieth, one thousand eight hundred and ninety-four, not more than sixty-five persons shall be permitted to work in the same air current: Provided, That a larger number, not exceeding one hundred, may be allowed by the mine inspector where,

in his judgment, it is impracticable to comply with the foregoing requirement; and mines where more than ten persons are employed, shall be provided with a fan, furnace or other artificial means to produce the ventilation, and all stoppings between main intake and return air-ways hereinafter built or replaced shall be substantially built with suitable material, which shall be approved by the inspector of the district.

Section 3. All ventilating fans shall be kept in operation continuously night and day, unless operations are indefinitely suspended, except written permission is given by the mine inspector of the district to stop the same, and the said written permission shall state the particular hours the said fan may not be in operation, and the mine inspector shall have power to withdraw or modify such permission as he may deem best, but in all cases the fan shall be started two hours before the time to begin work. When the fan may be stopped by permission of the mine inspector a notice printed in the various languages used by persons employed in the mine, stating at what hour or hours the fan will be stopped, shall be posted by the mine foreman in a conspicuous place at the entrance or entrances to the mine.

Said printed notices shall be furnished by the mine inspector and the cost thereof borne by the State: Provided, That should it at any time become necessary to stop the fan on account of accident or needed repairs to any part of the machinery connected therewith, or by reason of any other unavoidable cause, it shall then be the duty of the mine foreman or any other officials in charge, after first having provided, as far as possible for the safety of the persons employed in the mine, to order said fan to be stopped so as to make the necessary repairs or to remove any other difficulty that may have been the cause of its stoppage. And all ventilating furnaces in mines shall, for two hours before the appointed time to begin work and during working hours, be properly attended by a person employed for that purpose. In mines generating fire-damp in sufficient quantities to be detected by ordinary safety lamps, all main air bridges or overcasts made after the passage of this act shall be built of masonry or other incombustible material of ample strength or be driven through the solid strata.

In all mines the doors used in guiding and directing the ventilation of the mine shall be so hung and adjusted that they will close themselves, or be supplied with spring or pulleys so that they cannot be left standing open, and an attendant shall be employed at all principal doors through which cars are hauled, for the purpose of opening and closing said doors when trips of cars are passing to and from the workings, unless an improved self-acting door is used, which principal doors shall be determined by the mine inspector or

mine foreman. A hole for shelter shall be provided at each door so as to protect said attendant from being run over by the cars while attending to his duties, and persons employed for this purpose shall at all times remain at their post of duty during working hours: Provided, That the same person may attend two doors where the distance between them is not more than one hundred feet. On every inclined plane or road in any mine where haulage is done by machinery and where a door is used, an extra door shall be provided to be used in case of necessity.

ARTICLE V.

Safety Lamps, Fire Bosses, Et Cetera.

Section 1. All mines generating fire-damp shall be kept free of standing gas in all working places and roadways. No accumulation of explosive gas shall be allowed to exist in the worked out or abandoned parts of any mine when it is practicable to remove it, and the entrance or entrances to said worked out and abandoned places shall be properly fenced off, and cautionary notices shall be posted upon said fencing to warn persons of danger.

Section 2. In all mines wherein explosive gas has been generated within the period of six months next preceding the passage of this act, and also in all mines where fire-damp shall be generated, after the passage of this act, in sufficient quantities to be detected by the ordinary safety lamp, every working place without exception and all road ways shall be carefully examined immediately before each shift by competent person or persons appointed by the superintendent and mine foreman for that purpose. The person or persons making such examination shall have received a fire boss certificate of competency required by this act, and shall use no light other than that enclosed in a safety lamp while making said examination. In all cases said examination shall be begun within three hours prior to the appointed time of each shift commencing to work, and it shall be the duty of the said fire boss at each examination to leave at the face and side of every place so examined, evidence of his presence. And he shall also, at each examination, inspect the entrance or entrances to the worked out or abandoned parts which are adjacent to the roadways and working places of the mine where fire-damp is likely to accumulate, and where danger is found to exist he shall place a danger signal at the entrances to such places, which shall be sufficient warning for persons not to enter said place.

Section 3. In any place that is being driven towards or in dangerous proximity to an abandoned mine or part of a mine suspected of containing inflammable gases, or which may be inundated with water, bore holes shall be kept not less than twelve feet in advance of the face, and on the sides of such working places, said side holes

to be drilled diagonally not more than eight feet apart, and any place driven to tap water or gas shall not be more than ten feet wide, and no water or gas from an abandoned mine or part of a mine and no bore holes from the surface, shall be tapped until the employes, except those engaged at such work, are out of the mine, and such work to be done under the immediate instruction of the mine foreman.

Section 4. The fire boss shall at each entrance to the mine or in the main intake air-way near to the mine entrance, prepare a permanent station with the proper danger signal designated by suitable letters and colors placed thereon, and it shall not be lawful for any person or persons, except the mine officials in cases of necessity, and such other persons as may be designated by them, to pass beyond said danger station until the mine has been examined by the fire boss as aforesaid and the same, or certain parts thereof, reported by him to be safe, and in all mines where operations are temporarily suspended the superintendent and mine foreman shall see that a danger signal be placed at the mine entrance or entrances, which shall be a sufficient warning to persons not to enter the mine, and if the ordinary circulation of air through the mine be stopped each entrance to said mine shall be securely fenced off and a danger signal shall be displayed upon said fence and any workman or other person, (except those persons hereinbefore provided for,) passing by any danger signal into the mine before it has been examined and reported to be safe as aforesaid, shall be deemed guilty of a misdemeanor and it shall be the duty of the fire boss, mine foreman, superintendent or any employe to forthwith notify the mine inspector, who shall enter proceedings against such person or persons as provided for in section two of article twenty-one of this act.

Section 5. All entries, tunnels, air ways, traveling ways and other working places of a mine where explosive gas is being generated in such quantities as can be detected by the ordinary safety lamp, and pillar workings and other working places in any mine where a sudden inflow of said explosive gas is likely to be encountered, (by reason of the subsidence of the overlying strata or from any other causes), shall be worked exclusively with locked safety lamps. The use of open lights is also prohibited in all working places, roadways or other parts of the mine through which fire-damp might be carried in the air current in dangerous quantities. In all mines or parts of mines worked with locked safety lamps the use of electric wires and electric currents is positively prohibited, unless said wires and machinery and all other mechanical devices attached thereto and connected therewith are constructed and protected in such a manner as to secure freedom from the emission of sparks or flame therefrom into the atmosphere of the mine.

Section 6. After January first, one thousand eight hundred and ninety-four, the use of the common Davy safety lamp for general work on any bituminous coal mine is hereby prohibited, neither shall the Clanny lamp be so used unless its gauze is thoroughly protected by a metallic shield, but this act does not prohibit the use of the Davy and Clanny lamps by the mine officials for the purpose of examining the workings for gas.

Section 7. All safety lamps used for examining mines or for working therein shall be the property of the operator, and shall be in the care of the mine foreman, his assistant or fire boss, or other competent person, who shall clean, fill, trim, examine and deliver the same, locked, in a safe condition to the men when entering the mine before each shift, and shall receive the same from the men at the end of each shift, for which service a charge not exceeding cost of labor and material may be made by the operator. A sufficient number of safety lamps, but not less than twenty-five per centum of those in use, shall be kept at each mine where gas has at any time been generated in sufficient quantities to be detected by an ordinary safety lamp, for use in case of emergency. It shall be the duty of every person who knows his safety lamp to be injured or defective, to promptly report such fact to the party authorized herein to receive and care for said lamps, and it shall be the duty of that party to promptly report such fact to the mine foreman.

## ARTICLE VI.

### Mine Foreman and His Duties.

Section 1. In order to better secure the proper ventilation of the bituminous coal mines and promote the health and safety of the persons employed therein, the operator or superintendent shall employ a competent and practical inside overseer for each and every mine, to be called mine foreman; said mine foreman shall have passed an examination and obtained a certificate of competency or of service as required by this act and shall be a citizen of the United States and an experienced coal miner, and said mine foreman shall devote the whole of his time to his duties at the mine when in operation, or in case of his necessary absence, an assistant, chosen by him and shall keep a careful watch over the ventilating apparatus, and the air ways, traveling ways, pump and pump timbers and drainage, and shall often instruct, and as far as possible, see that as the miners advance their excavations all dangerous coal, slate and rock overhead are taken down or carefully secured against falling therein, or on the traveling and hauling ways, and that sufficient props, caps and timbers of suitable size are sent into the mine when required, and all props shall be cut square at both ends, and as near as prac-

ticable to a proper length for the places where they are to be used, and such props, caps and timbers shall be delivered in the working places of the mine.

Section 2. Every workman in want of props or timbers and cap pieces shall notify the mine foreman or his assistant of the fact at least one day in advance, giving the length and number of props or timbers and cap pieces required, but in cases of emergency the timbers may be ordered immediately upon the discovery of any danger. (The place and manner of leaving the orders for the timber shall be designated and specified in the rules of the mine.) And if, from any cause, the timbers cannot be supplied when required, he shall instruct the persons to vacate all said working places until supplied with the timber needed, and shall see that all water be drained or hauled out of all working places before the miner enters and as far as practicable kept dry while the miner is at work.

Section 3. It shall be the duty of the mine foreman to see that proper cut-throughs are made in all the room pillars at such distances apart as in the judgment of the mine inspector may be deemed requisite, not more than thirty-five nor less than sixteen yards each, for the purpose of ventilation, and the ventilation shall be conducted through said cut-through into rooms by means of check doors made of canvas or other suitable material, placed on the entries, or in other suitable places, and he shall not permit any room to be opened in advance of the ventilating current. Should the mine inspector discover any room, entry, air-way or other working places being driven in advance of the air current contrary to the requirements of this section, he shall order the workmen working in such places to cease work at once until the law is complied with.

Section 4. In all hauling roads, on which hauling is done by animal power, and whereon men have to pass to and from their work, holes for shelter, which shall be kept clear of obstruction, shall be made at least every thirty yards and be kept whitewashed, but shelter holes shall not be required in entries from which rooms are driven at regular intervals not exceeding fifty feet, where there is a space four feet between the wagon and rib, it shall be deemed sufficient for shelter. On all hauling roads whereon hauling is done by machinery, and all gravity or inclined planes inside mines upon which the persons employed in the mine must travel on foot to and from their work, such shelter holes shall be cut not less than two feet six inches into the strata and not more than fifteen yards apart, unless there is a space of at least six feet from the side of the car to the side of the roadway, which space shall be deemed sufficient for shelter: Provided, That this requirement shall not apply to any parts of mines which parts were opened prior to the passage of this act if deemed impracticable by the mine inspector.

Section 5. The mine foreman shall measure the air current at least once a week at the inlet and outlet and at or near the faces of the entries, and shall keep a record of such measurements. An anemometer shall be provided for this purpose by the operator of the mine. It shall be the further duty of the mine foreman to require the workmen to use locked safety lamps when and where required by this act.

Section 6. The mine foreman shall give prompt attention to the removal of all dangers reported to him by the fire boss or any other person working in the mine, and in mines where a fire boss is not employed, the said mine foreman or his assistant shall visit and examine every working place therein at least once every alternate day while the miners of such place are or should be at work, and shall direct that each and every working place be properly secured by props or timbers, and that no person shall be directed or permitted to work in an unsafe place unless it be for the purpose of making it safe: Provided, That if the owner or operator of any mine employing a fire boss shall require the mine foreman to examine every working place every alternate day, then it shall be the duty of the mine foreman to do so.

Section 7. When the mine foreman is unable personally to carry out all the requirements of this act as pertaining to his duties, he shall employ a competent person or persons, not objectionable to the operator, to act as his assistant or assistants, who shall act under his instructions, and in all mines where fire-damp is generated the said assistant or assitants shall possess a certificate of competency as mine foreman or fire boss.

Section 8. A suitable record book, with printed head lines, prepared by and approved by the mine inspector, the same to be provided at the expense of the Commonwealth, shall be kept at each mine generating explosive gases, and immediately after each examination of the mine made by the fire boss or fire bosses, a record of the same shall be entered in said book, signed by the person or persons making such examinations, which shall clearly state the nature and location of any danger which he or they may have discovered, and the fire boss or fire bosses shall immediately report such danger and the location of the same to the mine foreman, whose duty it shall be to remove the danger, or to cause the same to be done forthwith as far as practicable, and the mine foreman shall also each day countersign all reports entered by the fire boss or fire bosses. At all mines the mine foreman shall enter in a book provided as above by the mine inspector, a report of the condition of the mine, signed by himself, which shall clearly state any danger that may have come under his observation during the day, and shall also state whether he has a proper supply of material on hand for the safe working of the mine, and whether all requirements of the law are strictly com-

plied with. He shall, once each week, enter or cause to be entered, plainly, with ink, in said book, a true record of all air measurements required by this act, and such books shall at all times, be kept at the mine office for examination by the mine inspector of the district and any other person working in the mines.

ARTICLE VII.

Timber and Other Mine Supplies, Et Cetera.

Section 1. It shall be the duty of the superintendent, on behalf and at the expense of the operator to keep on hand at the mines at all times, a full supply of all materials and supplies required to preserve the health and safety of the employes as ordered by the mine foreman and required by this act. He shall at least once a week, examine and countersign—(which countersignature of the superintendent shall be held, under this act to have no further bearing than the evidence of the fact that the mine superintendent has read the matter entered on the book)—all reports entered in the mine record book, and if he finds that the law is being violated in any particular, he shall order the mine foreman to comply with its provisions forthwith. If from any cause he cannot procure the necessary supplies or materials as aforesaid, he shall notify the mine foreman, whose duty it shall be to withdraw the men from the mine or part of mine until such supplies or materials are received.

Section 2. The superintendent of the mine shall not obstruct the mine foreman or other officials in their fulfillment of any of the duties required by this act. At mines where superintendents are not employed, the duties that are herein prescribed for the superintendent shall devolve upon the mine foreman.

ARTICLE VIII.

Steam Boilers, Stables, Regulations for the Use of Oil, Powder, Et Cetera.

Section 1. After the passage of this act it shall be unlawful to place a main or principal ventilating fan shed inside of any bituminous coal mine wherein explosive gas has been detected or in which the air current is contaminated with coal dust. No stationery steam boiler shall be placed in any bituminous coal mine, unless said steam boiler be placed within fifty feet from the bottom of an up-cast shaft, which shaft shall not be less than twenty-five square feet in area, and after May thirtieth, one thousand eight hundred and ninety-five, no stationary steam boiler shall be permitted to remain in any bituminous coal mine, only as aforesaid.

Section 2. It shall not be lawful after the passage of this act to provide any horse or mule stables inside of bituminous coal mines, unless said stables are excavated in the solid strata or coal seams, and

no wood or other combustible material shall be used excessively in the construction of said stables, unless surrounded by or incased by some incombustible material. The air current used for ventilating said stable shall not be intermixed with the air current used for ventilating the working parts of the mine, but shall be conveyed directly to the return air current, and no open light shall be permitted to be used in any stable in any mine.

Section 3. No hay or straw shall be taken into any mine, unless pressed and made up into compact bales, and all hay or straw taken into the mines as aforesaid, shall be stored in a storehouse excavated in the solid strata or built in masonry for that purpose. After January first, one thousand eight hundred and ninety-four, no horse or mule stable or storehouse, only as aforesaid, shall be permitted in any bituminous coal mine.

Section 4. No explosive oil shall be used or taken into bituminous coal mines for lighting purposes, and oil shall not be stored or taken into the mines in quantities exceeding five gallons. The oiling or greasing of cars inside of the mines is strictly forbidden unless the place where said oil or grease is used is thoroughly cleaned at least once every day to prevent the accumulation of waste oil or grease on the roads or in the drains at that point. Not more than one barrel of lubricating oil shall be permitted in the mine at any one time. Only a pure animal or pure cotton-seed oil or oils, that shall be as free from smoke as pure animal or pure cotton-seed oil, shall be used for illuminating purposes in any bituminous mine. Any person found knowingly using explosive or impure oil, contrary to this section, shall be prosecuted as provided for in section two of article twenty-one of this act.

Section 5. No powder or high explosive shall be stored in any mine, and no more of either article shall be taken into the mine at any one time than is required in any one shift, unless the quantity be less than five pounds, and in all working places where locked safety lamps are used blasting shall only be done by the consent and in the presence of the mine foreman, his assistant or fire boss, or any competent party designated by the mine foreman for that purpose; whenever the mine inspector discovers that the air in any mine is becoming vitiated by the unnecessary blasting of the coal, he shall have the power to regulate the use of the same and to designate at what hour of the day blasting may be permitted.

## ARTICLE IX.

### Opening for Drainage, Et Cetera, on Other Lands.

Section 1. If any person, firm or corporation is or shall hereafter be seized in his or their own right of coal lands, or shall hold such lands under lease and shall have opened or shall desire to open a

coal mine on said land, and it shall not be practicable to drain or ventilate such mines or to comply with the requirements of this act as to ways of ingress and egress or traveling ways by means of openings on lands owned or held under lease by him, them or it, and the same can be done by means of openings on adjacent lands, he, they or it may apply by petition to the court of quarter sessions of the proper county, after ten days' notice to the owner or owners, their agents or attorney, setting forth the facts under oath or affirmation particularly describing the place or places where such opening or openings can be made, and the pillars of coal or other material necessary for the support of such passageway and such right of way to any public road as may be needed in connection with such opening, and that he or they cannot agree with the owner or owners of the land as to the amount to be paid for the privilege of making such opening or openings, whereupon the said court shall appoint three disinterested and competent citizens of the county to view the ground designated and lay out from the point or points mentioned in such petition, a passage or passages not more than eighty feet area by either drift, shaft or slope, or by a combination of any of said methods by any practicable and convenient route to the coal of such person, firm or corporation, preferring in all cases an opening through the coal strata where the same is practicable. The said viewers shall, at the same time, assess the damages to be paid by the petitioner or petitioners to the owner or owners of such lands for the coal and other valuable material to be removed in the excavation and construction of said passage, also for such coal or other valuable material necessary to support the said passage, as well as for a right of way not exceeding fifteen feet in width from any such opening to any public road, to enable persons to gain entrance to the mine through such opening or to provide therefrom, upon the surface, a water course of suitable dimensions to a natural stream to enable the operator to discharge the water from said mine if such right of way shall be desired by the petitioner or petitioners, which damages shall be fully paid before such opening is made. The proceedings shall be recorded in the road docket of the proper county, and the pay of viewers shall be the same as in road cases; if exceptions be filed they shall be disposed of by the court as speedily as possible, and both parties to have the right to take depositions as in road cases. If, however, the petitioner desires to make such openings or roads or waterways before the final disposition of such exceptions, he shall have the right to do so by giving bond, to be aprpoved by the court securing the damages as provided by law in the case of lateral railroads.

Section 2. It shall be compulsory upon the part of the mine owner or operator to exercise the powers granted by the provisions of the

last preceding section for the procuring of a right of way on the surface from the opening of a coal mine to a public road or public roads, upon the request in writing of fifty miners employed in the mine or mines of such owner or operator: Provided however, That with such request satisfactory security be deposited with the mine owner or operator by said petitioners, being coal miners, to fully and sufficiently pay all costs, damages and expenses caused by such proceedings and in paying for such right of way.

Section 3. In any mine or mines, or parts thereof, wherein water may have been allowed to accumulate in large and dangerous quantities, putting in danger the adjoining or adjacent mines and the lives of the miners working therein, and when such can be tapped and set free and flow by its own gravity to any point of drainage, it shall be lawful for any operator or person having mines so endangered, with the approval of the inspector of the district, to proceed and remove the said danger by driving a drift or drifts protected by bore holes as provided by this act, and in removing said danger it shall be lawful to drive across property lines if needful.

And it shall be unlawful for any person to dam or in any way obstruct the flow of any water from said mine or parts thereof, when so set free on any part of its passage to point of drainage.

Section 4. No operator shall be permitted to mine coal within fifty feet of any abandoned mine containing a dangerous accumulation of water, until said danger has been removed by driving a passage way so as to tap and drain off said water as provided for in this act: Provided, That the thickness of the barrier pillars shall be greater and shall be in proportion of one foot of pillar thickness to each one and one-quarter foot of waterhead if, in the judgment of the engineer of the property and that of the district mine inspector, it is necessary for the safety of the persons working in the mine.

Section 5. All operators of bituminous coal mines shall keep posted in a conspicuous place at their mines the general and special rules embodied in and made part of this act, defining the duties of all persons employed in or about said mine, which said rules shall be printed in the English language, and shall also be printed in such other language or languages as are used by any ten persons working therein. It shall be the duty of the mine inspector to furnish to the operator printed copies of such rules and such translations thereof as are required by this section, and to certify their correctness over his signature. The cost thereof shall be borne by the State.

## ARTICLE X.

### Inspectors, Examining Boards, Et Cetera.

Section 1. The board of examiners appointed to examine candidates for the office of mine inspectors under the provisions of the act

to which this is a supplement, shall exercise all the powers granted, and perform all the duties required by this supplementary act, and at the expiration of their term of office, and every four years thereafter, the Governor shall appoint, as hereinafter provided, during the month of January, two mining engineers of good repute and three other persons, who shall have passed successful examinations qualifying them to act as mine inspectors or mine foremen in mines generating fire-damp, who shall be citizens of this Commonwealth and shall have attained the age of thirty years and shall have had at least five years of practical experience in the bituminous mines of Pennsylvania, and who shall not be serving at that time in any official capacity at mines, which five persons shall constitute a board of examiners whose duty it shall be to inquire into the character and qualification of candidates for the office of inspector of mines under the provisions of this act.

Section 2. The examining board, so constituted shall meet on the first Tuesday of March following their appointment, in the city of Pittsburgh, to examine applicants for the office of mine inspector: Provided, however, The examining board shall meet two weeks previous to the aforesaid time for the purpose of preparing questions, et cetera, and when called together by the Governor on extra occasions at such time and place as he may designate, and after being duly organized and having taken and subscribed before any officer authorized to administer the same the following oath, namely, "We, the undersigned, do solemnly swear (or affirm) that we will perform the duties of examiners of applicants for the appointment as inspectors of bituminous coal mines to the best of our abilities, and that in recommending or rejecting said applicant, we will be governed by the evidence of the qualifications to fill the position under the law creating the same, and not by any consideration of political or personal favor; and that we will certify all whom we may find qualified according to the true intent and meaning of the act and none others."

Section 3. The general examination shall be in writing and the manuscript and other papers of all applicants, together with the tally sheets and the solution of each question as given by the examining board, shall be filed with the Secretary of Internal Affairs as public documents, but each applicant shall undergo an oral examination pertaining to explosive gases and safety lamps, and the examining board shall certify to the Governor the names of all such applicants which they shall find competent to fill this office under the provisions of this act, which names, with the certificates and their percentages and the oaths of the examiners, shall be mailed to the Secretary of the Commonwealth and be filed in his office. No person shall be certified as competent whose percentage shall be less

than ninety per centum, and such certificate shall be valid only when signed by four of the members of the examining board.

Section 4. The qualification of candidates for said office of inspectors of mines to be inquired into and certified by said examiners, shall be as follows, namely: They shall be citizens of Pennsylvania, of temperate habits, of good repute as men of personal integrity, and shall have attained the age of thirty years, and shall have had at least five years of practical experience in working of or in the workings of the bituminous mines of Pennsylvania immediately preceding their examination, and shall have had practical experience with fire-damp inside the mines of this country, and upon examination shall give evidence of such theoretical as well as practical knowledge and general intelligence respecting mines and mining and the working and ventliation thereof, and all noxious mine gases, and will satisfy the examiners of their capability and fitness for the duties imposed upon inspectors of mines by the provisions of this act. And the examining board shall immediately after the examination, furnish to each person who came before it to be examined, a copy of all questions whether oral or written, which were given at the examination on printed slips of paper and to be marked solved, right, imperfect or wrong, as the case may be, together with a certificate of competency to each candidate who shall have made at least ninety per centum.

Section 5. The board of examiners may, also at their meeting, or when at any time called by the Governor together for an extra meeting, divide the bituminous coal regions of the State into inspection districts, no district to contain less than sixty nor more than eighty mines, and as nearly as possible equalizing the labor to be performed by each inspector, and at any subsequent calling of the board of examiners this division may be revised as experience may prove to be advisable.

Section 6. The board of examiners shall each receive ten dollars per day for each day actually employed, and all necessary expenses, to be paid out of the State Treasury. Upon the filing of the certificate of the examining board in the office of the Secretary of the Commonwealth, the Governor shall, from the names so certified, commission one person to be inspector of mines for each district as fixed by the examiners in pursuance of this supplementary act, whose commission shall be for a full term of four years from the fifteenth day of May following: Always provided however, The highest candidate or candidates in percentage shall have priority to be commissioned for a full term or unexpired term before those candidates of lower percentage, and in case of a tie percentage the oldest candidate shall be commissioned.

Section 7. As often as vacancies occur in said office of inspectors of mines, the Governor shall commission for the unexpired term

from the names on file, the highest percentage in the office of the Secretary of the Commonwealth, until the number shall be exhausted, and whenever this may occur, the Governor shall cause the aforesaid board of examiners to meet, and they shall examine persons who may present themselves for the vacant office of mine inspector as herein provided, and the board of examiners shall certify to the Governor all persons who shall have made ninety per centum in said examination, one of whom to be commissioned by him according to the provisions of this act for the office of mine inspector for the unexpired term, and any vacancy that may occur in the examining board shall be filled by the Governor of this Commonwealth.

Section 8. Each inspector of mines shall receive for his services an annual salary of three thousand dollars and actual traveling expenses, to be paid quarterly by the State Treasurer upon warrant of the Auditor General, and each mine inspector shall keep an office in the district for which he is commissioned and he shall be permitted to keep said office at his place of residence: Provided, A suitable apartment or room be set off for that purpose. Each mine inspector is hereby authorized to procure such instruments, chemical tests and stationery and to incur such expenses of communication from time to time, as may be necessary to the proper discharge of his duties under this act at the cost of the State, which shall be paid by the State Treasurer upon accounts duly certified by him and audited by the proper department of the State.

Section 9. All instruments, plans, books, memoranda, notes and other material pertaining to the office shall be the property of the State, and shall be delivered to their successors in office. In addition to the expenses now allowed by law to the mine inspectors in enforcing the several provisions of this act, they shall be allowed all necessary expenses by them incurred in enforcing the several provisions of said law in the respective courts of the Commonwealth, the same to be paid by the State Treasurer on warrants drawn by the Auditor General after auditing the same; all such accounts presented by the mine inspector to the Auditor General shall be itemized and first approved by the court before which the proceedings were instituted.

Section 10. Each mine inspector of bituminous coal mines shall, before entering upon the discharge of his duties, give bond in the sum of five thousand dollars, with sureties to be approved by the president judge of the district in which he resides, conditional for the faithful discharge of his duties, and take an oath or affirmation to discharge his duties impartially and with fidelity to the best of his knowledge and ability. But no person who shall act as manager or agent of any coal mine, or as mining engineer or is interested in operating any coal mine, shall, at the same time act as mine inspector of coal mines under this act.

Section 11. Each inspector of bituminous coal mines shall devote the whole of his time to the duties of his office. It shall be his duty to examine each mine in his district as often as possible, but a longer period of time than three months shall not elapse between said examination, to see that all the provisions of this act are observed and strictly carried out, and he shall make a record of all examinations of mines, showing the condition in which he finds them, especially with reference to ventilation and drainage, the number of persons employed in each mine, the extent to which the law is obeyed and progress made in the improvement of mines, the number of serious accidents and the nature thereof, the number of deaths resulting from injuries received in or about the mines with the cause of such accident or death, which record completed to the thirty-first day of December of each and every year, shall, on or before the fifteenth day of March following, be filed in the office of the Secretary of Internal Affairs, to be by him recorded and included in the annual report of his department.

Section 12. It shall be the duty of the mine inspector on examination of any mine, to make out a written, or partly written and partly printed report of the condition in which he finds such mine and post the same in the office of the mine or other conspicuous place. The said report shall give the date of the visit, the number of cubic feet of air in circulation and where measured, and that he has measured the air at the cut through one or more rooms in each heading or entry, and such other information as he shall deem necessary, and the said report shall remain posted in the office or conspicuous place for one year and may be examined by any person employed in or about the mine.

Section 13. In case the inspector becomes incapacitated to perform the duties of his office or receives a leave of absence from the same from the Governor, it shall be the duty of the judge of the court of common pleas of his district to appoint, upon said mine inspector's application or that five miners or five operators of said inspector's district, some competent person, recommended by the board of examiners to fill the office of inspector until the said inspector shall be able to resume the duties of his office, and the person so appointed shall be paid in the same manner as is hereinbefore provided for the inspector of mines.

## ARTICLE XI.

### Inspectors' Powers, Et Cetera.

Section 1. That the mine inspectors may be enabled to perform the duties herein imposed upon them, they shall have the right at all times to enter any bituminous coal mine to make examinations or obtain information, and upon the discovery of any violation of this act, they shall institute proceedings against the person or persons at

fault under the provisions of section two of article twenty-one of this act. In case, however, where, in the judgment of the mine inspector of the district, any mine or part of mine is in such dangerous condition as to jeopardize life or health, he shall at once notify two of the mine inspectors of the other districts, whereupon they shall at once proceed to the mine where the danger exists and examine into the matter, and if, after full investigation thereof, they shall agree in the opinion that there is immediate danger, they shall instruct the superintendent of the mine in writing to remove such condition forthwith, and in case said superintendent shall fail to do so, then they shall apply, in the name of the Commonwealth, to the court of common pleas of the county, or in case the court shall not be in session, to a judge of the said court in chambers in which the mine may be located for an injunction to suspend all work in and about said mine, whereupon said court or judge shall at once proceed to hear, and determine speedily the same, and if the cause appear to be sufficient after hearing the parties and their evidences, as in like cases, shall issue its writ to restrain the working of said mine until all cause of danger is removed, and the cost of said proceedings shall be borne by the owner, lessee or agent of the mine: Provided, That if said court shall find the cause not sufficient, then the case shall be dismissed and the costs shall be borne by the county wherein said mine is located.

## ARTICLE XII.

### Inquests, Et Cetera.

Section 1. Whenever, by reason of any explosion or other accidents in any bituminous coal mine or the machinery connected therewith, loss of life or serious personal injury shall occur, it shall be the duty of the person having charge of such mine to give notice thereof forthwith to the mine inspector of the district and also to the coroner of the county, if any person is killed.

Section 2. If the coroner shall determine to hold an inquest, he shall notify the mine inspector of the district of time and place of holding the same, who shall offer such testimony as he may deem necessary to thoroughly inform the said inquest of the cause of the death, and the said mine inspector shall have authority at any time to appear before such coroner and jury and question or cross-question any witness, and in choosing a jury for the purpose of holding such inquest it shall be the duty of the coroner to empanel a jury, no one of which shall be directly or indirectly interested.

Section 3. It shall be the duty of the mine inspector, upon being notified of any fatal accident as herein provided, to immediately repair to the scene of the accident and make such suggestions as may appear necessary to secure the safety of any persons who may be en-

dangered, and if the results of the accident do not require an investigation by the coroner the said mine inspector shall proceed to investigate and ascertain the cause of the accident and make a record thereof, which he shall file as provided for, and to enable him to make the investigation he shall have power to compel the attendance of persons to testify, and to administer oaths or affirmations, and if it is found upon investigation that the accident is due to the violation of any provisions of this act by any person, other than those who may be deceased, the mine inspector may institute proceedings against such person or persons as provided for in section two of article twenty-one of this act.

Section 4. The cost of such investigation shall be paid by the county in which the accident occurred in the same manner as costs of inquests held by coroners or justices of the peace are paid.

## ARTICLE XIII.

### Neglect or Incompetence of Inspectors.

Section 1. The court of common pleas in any county or district, upon a petition signed by not less than fifteen reputable citizens, who shall be miners or operators of mines, and with the affidavit of one or more of said petitioners attached setting forth that any inspector of mines neglects his duties or is incompetent, or that he is guilty of a malfeasance in office, shall issue a citation in the name of the Commonwealth to the said mine inspector to appear on not less than fifteen days' notice, upon a day fixed, before said court, at which time the court shall proceed to inquire into and investigate the allegations of the said petitioners.

Section 2. If the court find that the said mine inspector is neglectful of his duties or incompetent to perform the duties of his office or that he is guilty of malfeasance in office, the court shall certify the same to the Governor, who shall declare the office of said mine inspector vacant and proceed in compliance with the provisions of this act to supply the vacancy; and the costs of said investigation shall, if the charges are sustained, be imposed upon the mine inspector, but if the charges are not sustained, they shall be imposed upon the petitioners.

## ARTICLE XIV.

### Discretionary Powers of Inspectors, Arbitration, Et Cetera.

Section 1. The mine inspectors shall exercise a sound discretion in the enforcement of the provisions of this act, and if the operator, owner, miners, superintendent, mine foreman or other persons employed in or about the mine as aforesaid shall not be satisfied with any decision the mine inspector may arrive at in the discharge of his duties under this act, which said decision shall be in writing signed

by the mine inspector, the said owner, operator, superintendent, mine foreman or other person specified above shall either promptly comply therewith or within seven days from date thereof appeal from such decision to the court of quarter sessions of the county wherein the mine is located, and said court shall speedily determine the question involved in said decision and appeal and the decision of said court shall be binding and conclusive.

Section 2. The court or the judge of said court in chambers may in its discretion, appoint three practical, reputable, competent and disinterested persons whose duty it shall be, under instructions of the said court, to forthwith examine such mine or other cause of complaint and report under oath, the facts as they exist or may have been, together with their opinions thereon within thirty days after their appointment. The report of said board shall become absolute unless exceptions thereto shall be filed within ten days after the notice of the filing thereof by the owner, operator, mine superintendent, mine foreman, mine inspector and other persons, as aforesaid, and if exceptions are filed the court shall at once hear and determine the same and the decision shall be final and conclusive.

Section 3. If the court shall finally sustain the decision of the mine inspector, then the appellant shall pay all costs of such proceedings, and if the court shall not sustain the decision of the mine inspector then such costs shall be paid by the county: Provided, That no appeal from any decision made by any mine inspector which can be immediately complied with shall work as a supersedeas to such decisions during the pendency of such appeal, but all decisions shall be in force until reversed or modified by the proper court.

## ARTICLE XV.

### Examinations of Mine Foremen and Fire Bosses.

Section 1. On the petition of the mine inspector the court of common pleas in any county in said district shall appoint an examining board of three persons, consisting of a mine inspector, a miner and an operator or superintendent, which said miner shall have received a certificate of competency as mine foreman in mines generating explosive gases, and the members of said examining board shall be citizens of this Commonwealth, and the persons so appointed shall after being duly organized take and subscribe before an officer authorized to administer the same, the following oath, namely: "We, the undersigned, do solemnly swear (or affirm) that we will perform the duties of examiners of applicants for the position of mine foremen and fire bosses of bituminous coal mines to the best of our abilities, and that in certifying or rejecting said applicants we will be governed by the evidence of the qualifications to fill the position

under the law creating the same and not by any consideration of personal favor; that we will certify all whom we may find qualified and none others."

Section 2. The examining board shall examine any person applying thereto as to his competency and qualifications to discharge the duties of mine foreman or fire boss.

Applicants for mine foreman or fire boss certificates shall be at least twenty-three years of age, and shall have had at least five years' practical experience, after fifteen years of age, as miners, superintendent at or inside of the bituminous mines of Pennsylvania and shall be citizens of this Commonwealth and men of good moral character and of known temperate habits.

The said board shall be empowered to grant certificates of competency of two grades, namely: certificates of first grade, to persons who have had experience in mines generating explosive gases and who shall have the necessary qualifications to fulfil the duties of mine foreman in such mines; and certificates of second grade, to persons who give satisfactory evidence of their ability to act as mine foreman in mines not generating explosive gases.

Section 3. The said board of examiners shall meet at the call of the mine inspector and shall grant certificates to all persons whose examination shall disclose their fitness for the duties of mine foreman as above classified, or fire boss, and such certificates shall be sufficient evidence of the holder's competency for the duties of said position so far as relates to the purposes of this act: Provided, That all persons holding certificates of competency granted under the provisions of the act to which this is a supplement shall continue to act under this act: And provided further, That any person acting as mine foreman upon a certificate of service under the act to which this is a supplement may continue to act in the same capacity at any mine where the general conditions affecting the health and safety of the persons employed do not differ materially from those at the mine in which he was acting when said certificate was granted: Provided, however, That if such a mine foreman leaves his present employer and secures employment elsewhere at any mine where in the judgment of the mine inspector of the district the conditions affecting the health and safety of the persons employed do differ materially from those at the mine at which he was employed when his certificate was granted, it shall then be the duty of the mine inspector of the district in which he has secured employment to serve written protest against such mine foreman's employment to the operator of said mine.

Section 4. The examining board shall hold their office for a period of four years from the date from their appointment and shall receive five dollars per day for each day necessarily employed and mileage

at the rate of three cents per mile for each mile necessarily traveled, and all other necessary expenses connected with the examination shall be paid by the Commonwealth. Each applicant before being examined shall pay the examining board the sum of one dollar, and one dollar additional for each certificate granted, which shall be for the use of the Commonwealth. The foregoing examination shall be held annually in each inspection district.

### ARTICLE XVI.

### Suspension of Certificates of Mine Foreman and Fire Bosses.

Section 1. No person shall act as fire boss in any bituminous coal mines, unless granted a certificate of competency by any one of the several examining boards. All applicants applying to any of the examining boards for fire boss certificates shall undergo an oral examination in the presence of explosive gas, and such certificate shall only be granted to men of good moral character and of known temperate habits, and it shall be unlawful for any operator or superintendent to employ any person as fire boss who has not obtained such certificate of competency as required by this act.

Section 2. If the mine foreman or fire boss shall neglect his duties or has incapacitated himself by drunkenness, or has been incapacitated by any other cause for the proper performance of said duties, and the same shall be brought to the knowledge of the operator or superintendent it shall be the duty of such operator or superintendent to discharge such delinquent at once and notify the inspector of the district of such action, whereupon it shall be the duty of said inspector to inform the court of common pleas of the county who shall issue a citation in the name of the Commonwealth to the said operator, superintendent, mine foreman or fire boss to appear at not less than fifteen days' notice upon a day fixed before said court, at which time the court shall proceed to inquire into and investigate the allegations. If the court finds that the allegations are true, it shall notify the examining board of such finding and instruct the said board to withdraw the certificate of such delinquent during any period of time that said court may deem sufficient, and at the expiration of such time he shall be entitled to a re-examination.

### ARTICLE XVII.

### Employment of Boys and Females.

Section 1. No boy under the age of twelve years, or any woman or girl of any age, shall be employed or permitted to be in the workings of any bituminous coal mine for the purpose of employment, or for any other purpose; and no boy under the age of sixteen shall be permitted to mine or load coal in any room, entry or other working place, unless in company with a person over sixteen years of age. If

the mine inspector or mine foreman has reason to doubt the fact of any particular boy being as old as this act requires for the service which said boy is performing at any mine, it shall be the duty of said mine inspector or mine foreman to report the fact to the superintendent, giving the name of said boy, and the said superintendent shall at once discharge the said boy.

### ARTICLE XVIII.

### Stretchers.

Section 1. It shall be the duty of operators or superintendents to keep at the mouth of the drift, shaft, or slope, or at such other place about the mine as shall be designated by the mine inspector, a stretcher properly constructed, and a woolen and a waterproof blanket in good condition for use in carrying away any person who may be injured at the mine: Provided, That where more than two hundred persons are employed two stretchers and two woolen and two waterproof blankets shall be kept. And in mines generating fire-damp a sufficient quantity of linseed or olive oil, bandages and linen shall be kept in store at the mines for use in emergencies, and bandages shall be kept at all mines.

### ARTICLE XIX.

### Annual Reports.

Section 1. On or before the twenty-fifth day of January in each year the operator or superintendent of every bituminous coal mine shall send to the mine inspector of the district in which said mine is located a correct report, specifying with respect to the year ending the thirty-first day of December preceding, the name of the operator and officers of the mine and the quantity of coal mined. The report shall be in such form and give such information regarding said mines as may be from time to time required and prescribed by the mine inspector of the district. Blank forms for such reports shall be furnished by the Commonwealth.

### ARTICLE XX.

### Additional Duties of Mine Foreman.

Section 1. Rule 1. The mine foreman shall attend personally to his duties in the mine and carry out all the instructions set forth in this act and see that the regulations prescribed for each class of workmen under his charge are carried out in the strictest manner possible, and see that any deviation from or infringements of any of them are promptly adjusted.

Rule 2. He shall cause all stoppings along the airways to be properly built.

Rule 3. He shall see that the entries at such places where road grades necessitate sprags or brakes to be applied or removed shall have a clear level width of not less than two and one-half feet, between the side of car and the rib to allow the driver to pass his trip safely and keep clear of the cars there.

Rule 4. He shall direct that all miners undermine the coal properly before blasting it and that blasting shall be done at only such hours as he shall direct and shall order the miners to set sprags under the coal, when necessary for safety while undermining at distances not exceeding seven feet apart, and he shall not allow the improper drawing of pillars.

Rule 5. In mines where fire damp is generated when the furnace fire has been put out it shall not be relighted, except in his presence, or that of his assistant under his instructions.

Rule 6. In case of accident to a ventilating fan or its machinery, or the fan itself, whereby the ventilation of the mine would be seriously interrupted, it shall be his duty to order the men to immediately withdraw from the mine and not allow their return to their work until the ventilation has been restored and the mine has been thoroughly examined by him or his assistant and reported to be safe.

Rule 7. He shall see that all dangerous places are properly fenced off and proper danger signal boards so hung on such fencing, that they may be plainly seen; he shall also travel all air roads and examine all the accessible openings to old workings as often as is necessary to insure their safety.

Rule 8. He shall provide a book or sheet to be put in some convenient place, or places, upon which shall be made a place for the numbers used by the miners with space sufficient to each number, so that the miners can write plainly the quantity of props, their approximate length and the number of caps and other timbers which they require, together with the date of the order. Said book or sheets shall be preserved for thirty days from their date.

### Duties of Fire Boss.

Rule 9. He shall enter the mine before the men have entered it, and before proceeding to examine the same, he shall see that the air current is traveling in its proper course, and if all seems right, he shall proceed to examine the workings.

Rule 10. He shall not allow any person, except those duly authorized to enter or remain in any part of the mine through which a dangerous accumulation of gas is being passed in the ventilating current from any other part of the mine.

Rule 11. He shall frequently examine the edge and accessible parts of new falls and old gobs and air courses, and he shall report at once any violation of this act to the mine foreman.

### Duties of Miners.

Rule 12. He shall examine his working place before beginning work and take down all dangerous slate, or otherwise make it safe by properly timbering the same before commencing to dig or load coal, and In mines where fire bosses are employed, he shall examine his place to see whether the fire boss has left the proper marks indicating his examination thereof, and he shall at all times be very careful to keep his working place in a safe condition during working hours.

Rule 13. Should he at any time find his place becoming dangerous either from gas or roof, or from any unusual condition which may have arisen, he shall at once cease working, and inform the mine foreman or his assistant of such danger, and before leaving such place he shall place some plain warning at the entrance thereto to warn others from entering into the danger.

Rule 14. It shall be the duty of every miner to mine his coal properly and to set sprags under the coal while undermining to secure it from falling and, after each blast, he shall exercise great care in examining the roof and coal and shall secure them safely before beginning work.

Rule 15. When places are liable to generate sudden volumes of fire damp, or where locked safety lamps are used, no miner shall be allowed to fire shots except under the supervision and with the consent of the mine foreman, or his assistant, or other competent person designated by the mine foreman for that purpose.

### Duties of Drivers.

Rule 16. When a driver has occasion to leave his trip he must be careful to see that it is left, when possible, in a safe place, secure from cars or other dangers, or from endangering drivers of trip following.

Rule 17. The driver must take great care while taking his trips down grades to have the brakes or sprags so adjusted that he can keep the cars under control and prevent them from running onto himself or others.

Rule 18. He shall not leave any cars standing where they may materially obstruct the ventilating current, except in case of accident to the trip.

### Duties of Trip Riders or Runners.

Rule 19. He shall exercise great care in seeing that all hitchings are safe for use and see that all the trip is coupled before starting, and should he at any time see any material defect in the rope, link or chain, he shall immediately remedy such defect or, if unable to do so, he shall detain the trip and report the matter to the mine foreman.

### Duties of Engineer.

Rule 20. It shall be the duty of the engineer to keep a careful watch over his engine and all machinery under his charge and see that the boilers are properly supplied with water, cleaned and inspected at proper intervals, and that the steam pressure does not exceed at any time the limit allowed by the superintendent.

Rule 21. He shall make himself acquainted with the signal codes provided for in this act.

Rule 22. He shall not allow any unauthorized person to enter the engine house, neither shall he allow any person to handle or run the engine, without the permission of the superintendent.

Rule 23. When workmen are being raised or lowered he shall take special precautions to keep the engine well under control.

Rule 24. The locomotive engineer must keep a sharp lookout ahead of his engine and sound the whistle or alarm bell frequently when coming near the partings or landings; he must not exceed the speed allowed by the mine foreman or superintendent. He must not allow any person except his attendants, to ride on the engine or on the full cars.

### Duties of Firemen.

Rule 25. Every fireman and other person in charge of a boiler or boilers for the generation of steam shall keep a careful watch of the same; he shall see that the steam pressure does not at any time exceed the limit allowed by the superintendent; he shall frequently try the safety-valve and shall not increase the weight on the same; he shall maintain a proper depth of water in each boiler, and if anything should happen to prevent this, he shall report the same without delay to the superintendent, or other person designated by the superintendent, and take such other action as may, under the particular circumstances, be necessary for the protection of life and the preservation of property.

### Duties of Fan Engineer.

Rule 26. The engineer in charge of any ventilating fan must keep it running at such speed as the mine foreman directs in writing. In case of accident to the boiler or fan machinery, not requiring the immediate withdrawal of the men from the mine by reason of serious interruption of the ventilation, he shall invariably notify the mine foreman. If ordinary repairs of the fan or machinery becomes necessary, he must give timely notice to the mine foreman and await his instructions before stopping it. He shall also examine at the beginning of each shift all the fan bearings, stays and other parts, and see that they are kept in proper working order. Should it become impossible to run the fan or necessary to stop it to prevent

destruction, he shall then at once stop it and notify the mine foreman immediately and give immediate warning to persons in the mine.

### Duties of Furnacemen.

Rule 27. The furnace man must attend to his duties with regularity, and in case he should be likely to be off work for any reason whatever, he must give timely notice to the mine foreman.

Rule 28. The furnace man must at all times keep a clear, brisk fire and the fire must not be smothered with coal or slack during working hours, nor shall he allow ashes to accumulate excessively on or under the bars, or in the approaches to the furnace, and ashes shall be cooled before being removed.

Rule 29. The furnace man must promptly obey the instructions of the mine foreman.

## SHAFTS AND SLOPES.

### Duties of Hookers-On.

Rule 30. The hookers-on at the bottom of any slope shall be very careful to see that the cars are properly coupled to a rope or chain and that the safety-catch or other device is properly attached to the car before giving the signal to the engineer.

### Duties of Cagers.

Rule 31. The cager at the bottom of any shaft shall not attempt to withdraw the car until the cage comes to rest, and when putting the full car on the cage he must be very careful to see that the springs or catches are properly adjusted so as to keep the car in its proper place before giving the signal to the engineer.

Rule 32. At every shaft or slope mine in which provision is made in this act for lowering and hoisting persons, a headman and footman shall be designated by the superintendent or mine foreman, who shall be at their proper places from the time that persons begin to descend until all the persons who may be at the bottom of said shaft or slope, when quitting work, shall be hoisted; such headman and footman shall personally attend to the signals and see that the provisions of this act in respect to lowering or hoisting persons in shafts or slopes shall be complied with.

Rule 33. He shall not allow any tools to be placed on the same cage with men or boys, nor on either cage when persons are being hoisted out of the mine, or being lowered into the mine, except when for the purpose of repairing the shaft or machinery therein. The men shall place their tools in cars provided for that purpose which car, or cars, shall be hoisted or lowered before and after the men have been hoisted or lowered. And he shall immediately inform the mine foreman of any violation of this rule.

Rule 34. He shall also see that no driver, or other person, ascends the shaft with any horse or mule, unless the said horse or mule is secured in a suitable box, or safely penned, and only the driver in charge of said horse or mule shall accompany it in any case.

### Duties of Top Man.

Rule 35. The top man of any slope, or incline plane, shall be very careful to close the safety block, or other device, as soon as the cars have reached the landing so as to prevent any loose or runaway cars from descending the slope, or incline plane, and in no case shall such safety block, or other device, be withdrawn until the cars are coupled to the rope or chain and the proper signal given. He shall carefully inspect daily all the machinery in and about the check house, and the rope used for lowering the coal and promptly report any defect discovered to the superintendent, and shall use great care in attaching securely the wagons or cars to the rope and carefully lower the same down the incline. He shall ring the alarm bell in case of accident, and when necessary immediately set free to act, the drop logs or safety switch.

Rule 36. The top man of any shaft shall see that the springs or keeps for the cage to rest upon are kept in good working order, and when taking the full car off he must be careful that no coal or other material is allowed to fall down the shaft.

Rule 37. He shall be at his proper place from the time that persons begin to descend until all the persons who may be at the bottom of said shaft or slope when quitting work shall be hoisted. Such headman and footman shall personally attend to the signals, and see that the provisions of this act in respect to lowering and hoisting persons in shafts or slopes shall be complied with.

Rule 38. He shall not allow any tools to be placed on the same cage with men or boys, nor on either cage when persons are being lowered into the mine, except when for the purpose of repairing the shaft or the machinery therein. The men shall place their tools in cars provided for that purpose, which car or cars shall be lowered before and after the men have been lowered.

Rule 39. He shall also see that no driver, or other person, descends the shaft with any horse or mule, unless the said horse or mule is secured in a suitable box or safely penned, and only the driver in charge of said horse or mule shall accompany it in any case.

### General Rules.

Rule 40. If any person shall receive any injury in or about the mine and the same shall come within the knowledge of the mine foreman, and if he shall be of the opinion that the injured person

requires medical or surgical treatment, he shall see that said injured person receives the same, and in case of inability of such injured person to pay therefor the same shall be borne by the county. The mine foreman shall report monthly to the mine inspector of the district on blanks furnished by said inspector for that purpose, all accidents resulting in personal injury.

Rule 41. No unauthorized person shall enter the mine without permission from the superintendent or mine foreman.

Rule 42. No person in a state of intoxication shall be allowed to go into or loiter about the mine.

Rule 43. All employes shall inform the mine foreman or his assistant of the unsafe condition of any working place, hauling roads or traveling ways, or of damage to doors, brattices or stoppings, or of obstructions in the air passages when known to them.

Rule 44. No person shall be employed to blast coal, rock or slate, unless the mine foreman is satisfied that such a person is qualified by experience to perform the work with ordinary care.

Rule 45. The mine superintendent or mine foreman shall cause to be constructed safety blocks or some other device for the purpose of preventing cars from falling into the shaft, or running away on slopes or incline planes; and safety switches, drop logs or other device shall be used on all slopes and incline planes; and said safety blocks, safety switches or other device must be maintained in good working order.

Rule 46. Every workman employed in the mine shall examine his working place before commencing work, and after any stoppage of work during the shift he shall repeat such examination.

Rule 47. No person shall be allowed to travel on foot to or from his work on any incline plane, dilly or locomotive roads, when other good roads are provided for that purpose.

Rule 48. Any employe or other person who shall wilfully deface, pull down or destroy any notice board, danger signal, general or special rules or mining laws, shall be prosecuted as provided for in section two, article twenty-one of this act.

Rule 49. No powder or high explosive shall be taken into the mine in greater quantities than required for use in one shift, unless such quantity be less than five pounds, and all powder shall be carried into the mine in metallic canisters.

Rule 50. Powder in quantities exceeding twenty-five pounds, or other explosives in quantities exceeding ten pounds, shall not be stored in any tipple or any weighing office, nor where workmen have business to visit, and no naked lights shall be used while weighing and giving out powder.

Rule 51. All persons except those duly authorized, are forbidden to meddle or tamper in any way with any electric or signal wires in or about the mines.

Rule 52. No greater number of persons shall be hoisted or lowered at any one time in any shaft than is permitted by the mine inspector, and whenever said number of persons shall arrive at the bottom of the shaft in which persons are regularly hoisted or lowered, they shall be furnished with an empty cage and be hoisted, and in cases of emergency a less number shall be promptly hoisted. Any person or persons crowding or pushing to get on or off the cages shall be deemed guilty of a misdemeanor.

Rule 53. Each workman, when engaged shall have his attention directed to the general and special rules by the person employing him.

Rule 54. Workmen and all other persons are expressly forbidden to commit any nuisance or throw into, deposit, or leave coals or dirt, stones or other rubbish in the air way or road so as to interfere with, pollute, or hinder the air passing into and through the mine.

Rule 55. No one, except a person duly authorized by the mine foreman, shall have in his possession a key or other instrument for the purpose of unlocking any safety lamp in any mine where locked safety lamps are used.

Rule 56. Every abandoned slope, shaft, air hole or drift shall be properly fenced around or across its entrance.

Rule 57. No safety lamps shall be entrusted to any person for use in mines until he has given satisfactory evidence to the mine foreman that he understands the proper use thereof and danger of tampering with the same.

Rule 58. No person shall ride upon or against any loaded car or cage in any shaft or slope in or about any bituminous coal mine; no person other than the trip runner shall be permitted to ride on empty trips on any slope, inclined plane or dilly road, when the speed of the cars exceeds six miles per hour. The transportation of tools in and out of the mines shall be under the direction of the mine foreman.

Rule 59. No persons other than the drivers or trip runners shall be permitted to ride on the full cars.

Rule 60. In mines where coal dust has accumulated to a dangerous extent, care shall be exercised to prevent said dust from floating in the atmosphere by sprinkling it with water, or otherwise, as far as practicable.

Rule 61. In cutting of clay veins, spars or faults in entries, or other narrow workings going into the solid coal in mines where explosive gases are generated in dangerous quantities, a bore hole shall be kept not less than three feet in advance of the face of the work, or an advance of any shot hole drilled for a blast to be fired therein.

Rule 62. The engineer placed in charge of an engine whereby persons are hoisted out of or lowered into any mine shall be a sober competent person, and not less than twenty-one years of age.

Rule 63. When a workman is about to fire a blast he shall be careful to notify all persons who might be endangered thereby, and shall give sufficient alarm so that any person or persons approaching shall be warned of the danger.

Rule 64. In every shaft or slope where persons are hoisted or lowered by machinery, as provided by this act, a topman and cager shall be appointed by the superintendent or mine foreman.

Rule 65. Whenever a workman shall open a box containing powder or other explosives, or while in any manner handling the same, he shall first place his lamp not less than five feet from such explosive and in such a position that the air current cannot convey sparks to it, and he shall not smoke while handling explosives.

Rule 66. An accumulation of gas in mines shall not be removed by brushing.

Rule 67. When gas is ignited by blast or otherwise, the person having charge of the place where the said gas is ignited, shall immediately extinguish it if possible, and if unable to do so shall immediately notify the mine foreman or his assistants of the fact. Workmen must see that no gas blowers are left burning upon leaving their working places.

Rule 68. All ventilating fans used at mines shall be provided with recording instruments by which the number of revolutions or the effective ventilating pressure of the fan shall be registered and the registration with its date for each and every day shall be kept in the office of the mine for future reference for one year from its date.

Rule 69. Where the clothing or wearing apparel of employes becomes wet by reason of working in wet places in the mines, it shall be the duty of the operator or superintendent of each mine, at the request in writing of the mine inspector, who shall make such request upon the petition of any five miners of any one mine in the district working in the aforesaid wet places, to provide a suitable building which shall be convenient to the principal entrances of such mine for the use of the persons employed in wet places therein for the purpose of washing themselves and changing their clothes when entering the mine and returning therefrom. The said building shall be maintained in good order and be properly lighted and heated and shall be provided with facilities for persons to wash. If any person or persons shall neglect or fail to comply with the provisions of this article or maliciously injure or destroy, or cause to be injured or destroyed, the said building or any part thereof, or any of the appliances or fittings used for supplying light and heat therein, or doing any act tending to the injury or destruction thereof, he or they shall be deemed guilty of an offense against this act.

Rule 70. In all shafts and slopes where persons, coal or other materials are hoisted by machinery the following code of signals shall be used:

One rap or whistle to hoist coal or other material.

One rap or whistle to stop cage or car when in motion.

Two raps or whistles to lower cage or car.

Three raps or whistles when persons are to be hoisted, and for engineer to signal back ready when persons are to be hoisted, after which persons shall get on the cage or car, then one rap shall be given to hoist.

Four raps or whistles, to turn on steam to the pumps.

But a variation from the above code of signals may be used by permission of the mine inspector: Provided, That in any such case such changed code shall be printed and posted.

Rule 71. No person or persons shall go into any old shaft or abandoned part of the mine or into any other place which is not in actual course of working without permission from the mine foreman, nor shall they travel to and from their work except by the traveling way assigned for that purpose.

Rule 72. No steam pipes through which high pressure steam is conveyed for the purpose of driving pumps or other machinery, shall be permitted on traveling or haulage ways, unless they are encased in asbestos, or some other suitable non-conducting material, or are so placed that the radiation of heat into the atmosphere of the mine will be prevented as far as possible.

Rule 73. Where a locomotive is used for the purpose of hauling coal out of a mine, the tunnel or tunnels through which the locomotive passes shall be properly ventilated and kept free as far as practicable of noxious gases, and a ventilating apparatus shall be provided by the operator to produce such ventilation when deemed necessary and practicable to do so by the mine inspector.

Rule 74. No inexperienced person shall be employed to mine out pillars unless in company with one or more experienced miners, and by their consent.

## ARTICLE XXI.

### Penalties.

Section 1. Any person or persons whomsoever, who shall intentionally or carelessly injure any shaft, safety lamp, instrument, aircourse or brattice, or obstruct or throw open air ways, or take matches for any purpose, or pipes or other smokers' articles beyond any station inside of which locked safety lamps are used, or injure any part of the machinery, or open a door in the mine and not close it again immediately or open any door which opening is forbidden, or disobey any order given in carrying out the provisions of this act, or do any other act whatsoever whereby the lives or the health of persons or the security of the miners or the machinery is endangered, shall be deemed guilty of a misdemeanor and may be punished in a manner provided for in this article.

Section 2. The neglect or refusal to perform the duties required to be performed by any section of this act by the parties therein required to perform them, or the violation of any of the provisions or requirements hereof, shall be deemed a misdemeanor and shall upon conviction thereof in the court of quarter sessions of the county wherein the misdemeanor was committed, be punishable by a fine not exceeding five hundred dollars or imprisonment in the county jail for a period not exceeding six months, or both, at the discretion of the court.

Section 3. That for any injury to person or property occasioned by any violation of this act, or any failure to comply with its provisions by any owner, operator or superintendent of any coal mine or colliery, a right of action shall accrue to the party injured against said owner or operator for any direct damages he may have sustained thereby, and in case of loss of life by reason of such neglect or failure aforesaid, a right of action shall accrue to the widow and lineal heirs of the person whose life shall be lost for like recovery of damages for the injury they shall have sustained.

## ARTICLE XXII.

### Definition.

Section 1. Coal Mine. In this act the term "coal mine" includes the shafts, slopes, adits, drifts or inclined planes connected with excavations penetrating coal stratum or strata, which excavations are ventilated by one general air current or divisions thereof and connected by one general system of mine railroads over which coal may be delivered to one or more common points outside the mine, when such is operated by one operator.

Excavations and Workings. The term "excavations and workings" includes all the excavated parts of a mine, those abandoned as well as the places actually being worked, also all underground workings and shafts, tunnels and other ways and openings, all such shafts, slopes, tunnels and other openings in the course of being sunk or driven, together with all roads, appliances, machinery and material connected with the same below the surface.

Shaft. The term "shaft" means a vertical opening through the strata, and which is or may be used for the purpose of ventilation or drainage or for hoisting men or material or both in connection with the mining of coal.

Slope. The term "slope" means an incline way or opening used for the same purpose as a shaft.

Operator. The term "operator" means any firm, corporation or individual operating any coal mine or part thereof.

Superintendent. The term "superintendent" means the person who shall have, on behalf of the operator, immediate supervision of one or more mines.

Bituminous Mines. The term "bituminous" coal mines shall include all coal mines in the State not now included in the anthracite boundaries.

The provisions of this act shall not apply to any mine employing less than ten persons in any one period of twenty-four hours.

ARTICLE XXIII.

Section 1. That all acts or parts of acts inconsistent herewith be and the same are hereby repealed.

Approved—The 15th day of May, A. D. 1893.

ROBT. E. PATTISON.

---

## AN ACT

Equalizing and fixing the compensation and mileage of the members of the several boards appointed under the provisions of the act approved June second, one thousand eight hundred and ninety-one, to examine candidates for appointment as Inspectors, foremen and fire bosses, respectively, in the anthracite coal mines, and providing for the employment and compensation and mileage of a clerk to each of said boards.

Section 1. Be it enacted, &c., That from and after the passage of this act the members of the several boards appointed under the provisions of the act approved June second, one thousand eight hundred and ninety-one, to examine candidates for appointment respectively as inspectors and foremen of anthracite coal mines, shall receive in lieu of all compensation, mileage, expenses, emoluments or allowances heretofore paid them, as follows: Six dollars per day for each day during which the said members shall be actually in attendance on the sessions of the board, and mileage at the rate of five cents for each mile actually traveled going from the home of the member to the place of meeting of the board and returning from said place to his said home by the shortest practicable railway route: Provided, That mileage shall be paid but once for each continuous session of the board, and by a continuous session shall be meant a session during the course of which no adjournment for a longer period than forty-eight hours shall take place.

Section 2. Each of the boards enumerated or described in the first section of this act shall be and the same is hereby authorized to employ a clerk, whose compensation and mileage shall be the same as that of a member of the board. So much of section four of the act

of June second, one thousand eight hundred and ninety-one, as authorizes the boards of examiners of candidates for inspectors of anthracite coal mines to engage the services of a clerk is hereby repealed, and all clerks hereafter appointed by the several boards hereinbefore mentioned shall be appointed under the provisions of this act.

Section 3. The members of the said boards shall, on the final adjournment of each session of their respective boards, submit to the Auditor General sworn statements approved by the president or chairman of their respective boards, setting forth the number of days during which each member shall have been actually in attendance on the sessions of the board of which he is a member during said session, as well as the distance from the home of the member to the place of meeting of his board as aforesaid, by the nearest practicable railway route, and the number of miles actually traveled by him; and the clerks of said boards shall submit like statements, and the Auditor General shall, upon the receipt of such sworn statements draw his warrant upon the State Treasurer in favor of each of such members and clerks for such sums as shall appear to be properly due each.

Section 4. All acts and parts of acts or supplements thereto in conflict herewith are hereby repealed.

Approved—The 26th day of June, A. D. 1895.

DANIEL H. HASTINGS.

---

## AN ACT

For the better protection of employes in and about the coal mines by preventing mine superintendent, mine foremen and assistants from receiving or soliciting any sums of money or other valuable consideration from men while in their employ, and providing a penalty for violation of the same.

Section 1. Be it enacted, &c., That on and after the passage of this act any mine superintendent, mine foreman or assistant foreman, or any other person or persons who shall receive or solicit any sum of money or other valuable consideration, from any of his or their employes for the purpose of continuing in his or their employ, shall be guilty of a misdemeanor, and upon conviction shall be subject to a fine not less than fifty dollars, nor more than three hundred dollars, and undergo an imprisonment of not less than six months, or both, at the discretion of the court.

Section 2. All acts or parts of acts inconsistent herewith be and the same are hereby repealed.

Approved—The 15th day of June, A. D. 1897.

DANIEL H. HASTINGS.

---

## AN ACT

Establishing a Bureau of Mines in the Department of Internal Affairs of Pennsylvania, defining its purposes and authority, providing for the appointment of a chief of said bureau and assistants, and fixing their salaries and expenses.

Section 1. Be it enacted, &c., That there is hereby established in the Department of Internal Affairs of Pennsylvania a bureau to be known as the Bureau of Mines, which shall be charged with the supervision of the execution of the mining laws of this Commonwealth, and the care and publication of the annual reports of the inspectors of coal mines.

Section 2. The chief officer of the bureau shall be denominated Chief of the Bureau of Mines, and shall be appointed by the Governor, by and with the advice and consent of the Senate, within thirty days after the final passage of this act, and every four years thereafter, who shall be commissioned by the Governor to serve a term of four years from the date of his appointment, and until his successor is duly qualified, and shall receive an annual salary of three thousand dollars and traveling expenses; and in case of a vacancy in the office of Chief of said Bureau, by reason of death, resignation or otherwise, the Governor shall appoint a qualified person to fill such vacancy for the unexpired balance of the term.

Section 3. The Chief of the Bureau of Mines shall be a competent person having had at least ten years practical experience in the working and ventilation of coal mines of this State, and a practical and scientific knowledge of all noxious and dangerous gases found in such mines. The said Chief of the Bureau of Mines so appointed shall, before entering upon the duties of his office, take and subscribe to the oath of office prescribed by the Constitution, the same to be filed in the office of the Secretary of the Commonwealth, and give to the Commonwealth a bond in the penal sum of ten thousand dollars, with surety to be approved by the Governor and Secretary of Internal Affairs, conditioned for the faithful discharge of the duties of his office.

Section 4. It shall be the duty of the Chief of the Bureau to devote the whole of his time to the duties of his office, and to see that the mining laws of this State are faithfully executed; and for this

purpose he is hereby invested with the same power and authority as the mine inspectors to enter, inspect and examine any mine or colliery within the State, and the works and machinery connected therewith, and to give such aid and instruction to the mine inspectors from time to time as he may deem best calculated to protect the health and promote the safety of all persons employed in and about the mines, and the said Chief of the Bureau of Mines shall have the power to suspend any mine inspector for any neglect of duty, but such suspended mine inspector shall have the right to appeal to the Secretary of Internal Affairs, who shall be empowered to approve of such suspension or restore such suspended mine inspector to duty, after investigating the causes which led to such suspension. Should the Chief of the Bureau of Mines receive information by petition, signed by ten or more miners, or one or more operators, setting forth that any of the mine inspectors are neglectful of their duty, or are incompetent to perform the duties of their office, or are guilty of malfeasance in office, he shall at once investigate the matter, and if he shall be satisfied that the charge or charges are well founded, he shall then petition the court of common pleas, or the judge in chambers, in any county within or partly within the inspection district of the said mine inspector; which court, upon receipt of said petition and a report of the character of the charges and testimony produced, shall at once issue a citation in the name of the Commonwealth to the said inspector, to appear on not less than fifteen days' notice, on a fixed day before said court, at which time the court shall proceed to inquire into the allegations of the petitioners, and may require the attendance of such witnesses on the subpoena issued and served by the proper officer or officers, as the judge of the court and the Chief of said Bureau may deem necessary in the case; the inspector under investigation shall also have similar power and authority to compel the attendance of witnesses in his behalf. If the court shall find by said investigation that the said mine inspector is guilty of neglecting his official duties, or is incompetent to perform the duties of his office, or is guilty of malfeasance in office, the said court shall certify the same to the Governor, who shall declare the office vacant, and shall proceed to supply the vacancy as provided for by the mining laws of this State. The cost of said investigation shall, if the charges are sustained, be imposed upon the mine inspector, but if the charges are not sustained the cost shall be paid out of the State Treasury, upon voucher or vouchers duly certified as to correctness by the judge or proper officer of the court where such proceedings are held. To enable the said Chief of the Bureau of Mines to conduct more effectually his examinations and investigations of the charges and complaints which may be made by petitioners against any of the mine inspectors as

herein provided, he shall have power to administer oaths and take affidavits and depositions in form and manner provided by law: Provided however, That nothing in this section shall be construed as to repeal section thirteen of article two of the act of Assembly approved the second day of June, Anno Domini one thousand eight hundred and ninety-one, entitled "An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania, and for the protection and preservation of property connected therewith," and also articles thirteen and fourteen of an act of Assembly approved the fifteenth day of May, Anno Domini one thousand eight hundred and ninety-three, entitled "An act relating to bituminous coal mines, and providing for the lives, health, safety and welfare of persons employed therein."

Section 5. It shall be the duty of the Chief of the Bureau of Mines to take charge of and preserve in his office the annual reports of the mine inspectors, and transmit a copy of them, together with such other statistical data compiled therefrom and other matter relating to the work of the Bureau as may be of public interest, properly addressed to the Secretary of Internal Affairs for transmission to the Governor and the General Assembly of this Commonwealth, on or before the first day of March in each year. It shall also be the duty of the Chief of the Bureau of Mines to see that said reports, or copy of them, are placed in the hands of the Public Printer for publication at the same date; the same to be published under direction of the Secretary of Internal Affairs as other reports of his Department are now required by law to be published, and in order that the Chief of said Bureau may be able to prepare, compile and transmit his annual report to the Secretry of Internal Affairs within the time herein specified, the mine inspectors are hereby required to deliver their annual reports to the Secretary of Internal Affairs on or before the fifteenth day of February in each year. In addition to the annual reports herein required of the mine inspectors, the said mine inspectors shall furnish the Chief of the Bureau of Mines, monthly and also such special reports or information on any subject regarding mine accidents or other matters pertaining to mining interests, or the safety of persons employed in mines as he at any time may require or may deem necessary in the proper and lawful discharge of his official duties. The Chief of the Bureau of Mines shall also establish as far as may be practicable a uniform style and size of blanks for the annual, monthly and special reports of the mine inspectors, and prescribe the form and character of subject matter to be embraced in the text and the tabulated statements of their reports. The Chief of the Bureau of Mines is hereby authorized to make such examinations and investigations as may enable him to report upon the various systems of

coal mining practiced in the State, method of mining, ventilation, machinery employed, structure and character of the several coal seams operated, and of the associated strata, the circumstances and responsibility of mine accidents, economy of coal production, coal waste, area and exhaustion of coal territory, and such other matters as may pertain to the general welfare of coal miners and others connected with coal mining, and the interests of coal mine owners and operators in this Commonwealth.

Section 6. The Chief of the Bureau of Mines shall keep in his office a journal or record of all examinations made and work done under his administration, and copies of all official communications, and is hereby authorized to procure such books, instruments and chemical or other tests as may be found necessary to the proper discharge of his duties under this act, at the expense of the State. All instruments, plans, books and records pertaining to the office shall be the property of the State, and shall be delivered to his successor in office.

Section 7. The Chief of the Bureau of Mines shall at all times be accountable to the Secretary of Internal Affairs for the faithful discharge of the duties imposed upon him by law, and the administration of his office and the rules and regulations pertaining to said Bureau shall be subject to the approval of the Secretary of Internal Affairs, who is hereby empowered to appoint an assistant to the Chief of the Bureau, at a salary of fourteen hundred dollars per annum, and a messenger at a salary of three hundred dollars per annum: And provided further, That the salaries of the Chief of the Bureau of Mines, his assistant and the messenger, shall be paid out of the State Treasury in the manner as other employes of the Department of Internal Affairs are now paid. Provided, That the Chief of said Bureau of Mines may be removed or suspended at any time by the Secretary of Internal Affairs, when in the opinion of said Secretary there has been a neglect of duty or a failure to comply with the law, or the instructions of the Secretary of Internal Affairs.

Section 8. No person who is acting as a land agent, or as manager, viewer or agent of any mine or colliery, or who is interested in operating any mine or colliery, shall at the same time serve as Chief of the Bureau of Mines under the provisions of this act.

Section 9. That the mine inspectors of each district of this State shall, within six months after the final passage and approval of this act, deposit in the Bureau of Mines an accurate map or plan of such coal mine, which may be on tracing muslin or sun print, drawn to a prescribed scale; which map or plan shall show the actual location of all openings, excavations, shafts, tunnels, slopes, planes, main

headings, cross headings, and rooms or working places in each strata operated; pump, fans or other ventilation apparatus, the entire course and direction of air currents, the relation and proximity of the workings of such coal mines to all other adjoining mines or coal lands, and the relative elevation of all tunnels and headings, and of the face of working places near to or approaching boundary lines or adjacent mines; and on or before the close of each calendar year transmit to the Chief of the Bureau of Mines a supplemental map or plan showing all excavations, changes and additions made in such mine during the year, drawn to the scale as the first mentioned map or plan. All such maps or plans to be and remain in the Bureau of Mines as a part of the records of that office.

Section 10. All acts or parts of acts inconsistent with this act be and the same are hereby repealed.

Approved—The 15th day of July, A. D. 1897.

DANIEL H. HASTINGS.

---

## AN ACT

Requiring the weighing of bituminous coal before screening, and providing a penalty for the violation thereof.

Section 1. Be it enacted, &c., That it shall be unlawful for any mine owner, lessee or operator of any bituminous coal mine in this Commonwealth, employing miners at bushel or ton rates, or other quantity, to pass the output of coal mined by said miners over any screen or other device which shall take any part from the weight, value or quantity thereof, before the same shall have been weighed and duly credited to the employe sending the same to the surface and accounted for at the legal rate of weight fixed by laws of this Commonwealth.

Section 2. Any owner, lessee or operator of any bituminous coal mine, violating the provisions of this act, shall be deemed guilty of a misdemeanor, and shall, upon conviction, for each and every such offense be punished by a fine of not less than one hundred ($100) dollars nor more than five hundred ($500) dollars, or by imprisonment in the county jail for a period not to exceed ninety days, or by both such fine and imprisonment, at the discretion of the court; proceedings to be instituted in any court of competent jurisdiction.

Section 3. All acts or parts of acts inconsistent herewith be and the same are hereby repealed.

Approved—The 15th day of July, A. D. 1897.

DANIEL H. HASTINGS.

---

## AN ACT

To protect the lives and limbs of miners from the dangers resulting from incompetent miners working in the anthracite coal mines of this Commonwealth, and to provide for the examination of persons seeking employment as miners in the anthracite region, and to prevent the employment of incompetent persons as miners in anthracite coal mines, and providing penalties for a violation of the same.

Section 1. Be it enacted, &c., That hereafter no person whomsoever shall be employed or engaged in the anthracite coal region of this Commonwealth, as a miner in any anthracite coal mine, without having obtained a certificate of competency and qualification so to do from the "Miners' Examining Board" of the proper district, and having been duly registered as herein provided.

Section 2. That there shall be established in each of the eight inspection districts in the anthracite coal region, a board to be styled the "Miners' Examining Board" of the .....district, to consist of nine miners who shall be appointed in the same manner as the boards to examine mine inspectors are now appointed from among the most skillful miners actually engaged in said business in their respective districts, and who must have had five years' practical experience in the same. The said persons so appointed shall each serve for a term of two years from the date on which their appointment takes effect, and they shall be appointed upon or before the expiration of the term of the present members of the "Miners' Examining Board," and they shall be and constitute the "Miners' Examining Board" for their respective districts, and shall hold the office for the term for which they were appointed, or until their successors are duly appointed and qualified, and shall receive as compensation for their services three dollars per day for each day actually engaged in this service, and all legitimate and necessary expenses incurred in attending the meetings of said board under the provisions of this act, and no part of the salary of said board or expenses thereof shall be paid out of the State Treasury.

Each of said boards shall organize by electing one of their members president, and one member as secretary, and by dividing them-

selves in to three sub-committees for the more convenient discharge of their duties, each of said committees shall have all powers hereinafter conferred upon the board; and whenever in this act the words "Examining Board" are used, they shall be taken to include any of the committees thereof.

Every member of said board shall, within ten days of their appointment or being apprised of the same, take and subscribe an oath or affirmation before a properly qualified officer of the county in which they reside, that they will faithfully and impartially discharge the duties of their office.

Any vacancies occurring in said board shall be filled in the manner hereinbefore provided from among such only as are eligible for original appointment.

Section 3. Each of said examining boards shall designate some convenient place within their districts for the meeting of the several committees thereof, and of which due notice shall be given by advertisement in two or more newspapers of the proper county, and so divided as to reach as nearly as practicable all the mining districts therein; but in no case shall such meeting be held in a building where any intoxicating liquors are sold.

Each of said committee shall open at the designated place of meeting a book of registration, in which shall be registered the name and address of each and every person duly qualified under this act to be employed as a miner in an anthracite coal mine. And it shall be the duty of all persons employed as miners to be properly registered, and in case of a removal from the district in which a miner is registered, it shall be his duty to be registered in the district to which he removes.

Application for registration only may be sent by mail to the board, after being properly attested before any person authorized to administer an oath or affirmation in the county in which the applicant resides. The form of application shall be subject to such regulation as may be prescribed by the boards, but in no case shall any applicant be put to any unnecessary expense in order to secure registration.

Section 4. Each applicant for examination and registration and for the certificate hereinafter provided, shall pay a fee of one dollar to the said board, and a fee of twenty-five cents shall be charged for registering any person who shall have been examined and registered by any other board, and the amount derived from this source shall be held by said boards and applied to the expenses and salaries herein provided and such as may arise under the provisions of this act; and the said boards shall report annually, to the court of common pleas of their respective counties and the Bureau of Mines and Mining all moneys received and disbursed under the provisions of

this act, together with the number of miners examined and registered under this act and the number who failed to pass the required examination.

Section 5. That it shall be the duty of each of the said boards to meet once every month and not oftener, and said meeting shall be public, and if necessary, the meeting shall be continued to cover whatever portion may be required of a period of three days in succession, and examine under oath all persons who shall desire to be employed as miners in their respective districts; and said board shall grant such persons as may be qualified, certificates of competency or qualification which shall entitle the holder thereof to be employed as and to do the work of miners as may be expressed in said certificate, and such certificates shall be good and sufficient evidence of registration and compentency under this act; and the holder thereof shall be entitled to be registered without an examination in any other of the anthracite districts upon the payment of the fee herein provided.

All persons applying for a certificate of competency, or to entitle them to be employed as miners, must produce satisfactory evidence of having had not less than two years practical experience as a miner, or as a mine laborer in the mines of this Commonwealth, and in no case shall an applicant be deemed competent unless he appear in person before the said board and answer intelligently and correctly at least twelve questions in the English language pertaining to the requirements of a practical miner, and be perfectly identified under oath, as a mine laborer by at least one practical miner holding miners' certificates. The said board shall keep an accurate record of the proceedings of all its meetings, and in said record shall show a correct detailed account of the examination of each applicant, with the questions asked and their answer, and at each of its meetings the board shall keep said record open for public inspection. Any miner's certificate granted under the provisions of this act, and the hereinafter mentioned act approved the ninth day of May, Anno Domini one thousand eight hundred and eighty-nine, shall not be transferable to any person or persons whatsoever, and any transfer of the same shall be deemed a violation of this act. Certificates shall be issued only at meetings of said board, and said certificates shall not be legal unless then and there signed in person by at least three members of said board.

Section 6. That no person shall hereafter engage as a miner in any anthracite coal mine without having obtained such certificate as aforesaid. And no person shall employ any person as a miner who does not hold such certificate as aforesaid, and no mine foreman or superintendent shall permit or suffer any person to be employed

under him, or in the mines under his charge and supervision as a miner, who does not hold such certificates. Any person or persons who shall violate or fail to comply with the provisions of this act, shall be guilty of a misdemeanor, and on conviction thereof shall be sentenced to pay a fine not less than one hundred dollars and not to exceed five hundred dollars, or shall undergo imprisonment for a term not less than thirty days and not to exceed six months, or either, or both, at the discretion of the court.

Section 7. The persons who are now serving as members of the Miners' Examining Board as created by the act approved the ninth day of May, Anno Domini one thousand eight hundred and eighty-nine, entitled "An act to provide for the examination of miners in the anthracite region of this Commonwealth, and to prevent the employment of incompetent persons as miners in anthracite coal mines," shall continue under the provisions of this act to serve as members of the "Miners' Examining Board" until the terms for which they were appointed under the provisions of the said act approved the ninth day of May, Anno Domini one thousand eight hundred and eighty-nine, shall have expired, and in the performance of the duties of their office they shall be subject to the provisions and requirements of this act.

Section 8. Nothing in this act shall be construed to in any way, excepting as herein provided, effect miners' certificates which have been lawfully issued under the provisions of the herein mentioned act, approved the ninth day of May, Anno Domini one thousand eight hundred and eighty-nine.

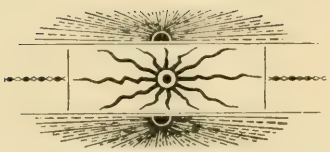
It shall be the duty of the several Miners' Examining Boards to investigate all complaints or charges of non compliance or violation of the provisions of this act, and to prosecute all persons so offending; and upon their failure so to do, then it shall become the duty of the district attorney of the county wherein the complaints or charges are made to investigate the same and prosecute all persons so offending, and it shall at all times be the duty of the district attorney to prosecute such members of the Miners' Examining Board as have failed to perform their duty under the provisions of this act; but nothing herein contained shall prevent any citizen, a resident of this Commonwealth, from prosecuting any person or persons violating this act, with power to employ private counsel to assist in the prosecution of the same; upon conviction of any member of the Miners' Examining Board for any violation of this act, in addition to the penalties herein provided, his office shall be declared vacant, and he shall be deemed ineligible to act as a member of the said board.

Section 10. For the purposes of this act the members of the said "Miners' Board" shall have power to administer oaths.

Section 11. All acts or parts of acts inconsistent herewith are hereby repealed.

Approved—The 15th day of July, A. D. 1897.

DANIEL H. HASTINGS.



# ANTHRACITE MINE DISTRICTS.

# First Anthracite District.

LACKAWANNA AND SUSQUEHANNA COUNTIES.

Scranton, Pa., February 14, 1898.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor of presenting to you my annual report as inspector of mines of the First anthracite district for the year ending December 31, 1897.

The total quantity of coal produced was 6,249,833 tons, which is 22,386 tons more than in 1896.

The number of fatal accidents was fifty-three, non-fatal one hundred and twenty-five. Twenty-eight wives were made widows, and sixty-six children under fourteen years of age were made fatherless by the accidents.

The average number of days worked was 165.4 against 174.9 in 1896.

There were 117,921 tons of coal produced per fatal accident.

The general condition of the mines is good. The ventilation is ample. Several new fans were erected during the year.

The report contains the usual tables, a brief description of each accident, and a few remarks as to the causes of many of them.

Respectfully submitted,

EDWARD RODERICK,

Inspector of Mines.

1—10—97

TABLE A.—Showing the Production of Coal, the Number of Persons Employed by each Company During the Year 1897, and the Average Number of Tons Produced per Employe.

| Names of Companies. | Number of tons of coal produced. | Number of employes. |
|---|---|---|
| Delaware and Hudson Canal Co., | 2,249,739 | 5,904 |
| Hillside Coal and Iron Co., | 769,701 | 2,217 |
| Delaware, Lackawanna and Western Railroad Co., | 478,485 | 1,070 |
| Pennsylvania Coal Co., | 326,749 | 835 |
| Lackawanna Coal Co., | 199,360 | 643 |
| Johnson Coal Co., | 189,907 | 790 |
| Pancoast Coal Co., | 192,269 | 632 |
| New York and Scranton Coal Co., | 201,050 | 784 |
| North West Coal Co., | 187,587 | 494 |
| Elk Hill Coal and Iron Co., | 150,605 | 410 |
| Sterrick Creek Coal Co., | 142,408 | 606 |
| Edgerton Coal Co., | 142,031 | 299 |
| Blue Ridge Coal Co., | 126,569 | 575 |
| Dolph Coal Co., | 134,748 | 574 |
| Forest Mining Co., | 225,622 | 714 |
| Mt. Jessup and Moosic Mountain Coal Co., | 191,702 | 559 |
| Riverside Coal Co., | 118,933 | 402 |
| Murray Coal Co., | 57,490 | 93 |
| Pierce Coal Co., | 86,268 | 243 |
| Franklin Coal Co., | 37,410 | 127 |
| Russell, B., Coal Co., | 41,200 | 95 |
| Totals, | 6,249,833 | 18,066 |

Tons produced per employe, 345+.

TABLE B.—Number of Fatal Accidents and Quantity of Coal Produced per Life Lost.

| Names of Companies. | Number of fatal accidents. | Number of tons of coal produced per life lost. |
|---|---|---|
| Delaware and Hudson Canal Co., | 14 | 160,695+ |
| Hillside Coal and Iron Co., | 4 | 192,425 |
| Delaware, Lackawanna and Western Railroad Co., | 1 | 478,485 |
| Pennsylvania Coal Co., | 4 | 81,687 |
| Edgerton Coal Co., | 6 | 23,671+ |
| Pancoast Coal Co., | 4 | 48,067 |
| Johnson Coal Co., | 5 | 37,981 |
| Sterrick Creek Coal Co., | 4 | 35,352 |
| North West Coal Co., | 2 | 93,793 |
| Blue Ridge Coal Co., | 3 | 42,189 |
| Miscellaneous coal companies, | 6 | 240,731 |
| Totals, | 53 | 117,921+ |

TABLE C.—Number of Fatal and Non-Fatal Accidents and Tons of Coal Produced per Accident.

| Names of Companies. | Number of accidents. | Tons of coal produced per accident. |
|---|---|---|
| Delaware and Hudson Canal Co., | 47 | 47,866 |
| Hillside Coal and Iron Co., | 24 | 32,070 |
| Delaware, Lackawanna and Western Railroad Co., | 14 | 34,177 |
| Pennsylvania Coal Co., | 18 | 18,125 |
| Edgerton Coal Co., | 8 | 17,754 |
| Pancoast Coal Co., | 10 | 19,227 |
| Johnson Coal Co., | 10 | 18,990 |
| Sterrick Creek Coal Co., | 7 | 20,344 |
| North West Coal Co., | 7 | 26,798 |
| Blue Ridge Coal Co., | 5 | 25,314 |
| Miscellaneous coal companies, | 28 | 51,585 |
| Totals, | 178 | 35,111+ |

TABLE D.—Showing Occupation of Persons Killed and Injured.

| Occupation. | Killed or fatally injured. | Injured. | Total. |
|---|---|---|---|
| Miners, | 25 | 40 | 65 |
| Laborers, | 19 | 40 | 59 |
| Track layers, | 2 | 1 | 3 |
| Drivers, | 1 | 19 | 20 |
| Runners, | ..... | 10 | 10 |
| Carpenters, | 1 | 1 | 2 |
| Footmen, | 1 | 2 | 3 |
| Sinkers, | 1 | 3 | 4 |
| Slate pickers, | 1 | 2 | 3 |
| Bell ringer, | 1 | ..... | 1 |
| Engineers, | 1 | ..... | 1 |
| Fire boss, | ..... | 2 | 2 |
| Company men, | ..... | 5 | 5 |
| Total, | 53 | 125 | 178 |

TABLE E.—Classification of Accidents.

| Causes of Accidents. | Killed or fatally injured. | Injured. | Fatal. |
|---|---|---|---|
| By cars inside, | 5 | 31 | 36 |
| By cars outside, | 2 | 1 | 3 |
| By falls of coal and rock, | 38 | 58 | 96 |
| By flying coal from shots, | 4 | 14 | 18 |
| By explosions of gas, | 1 | 6 | 7 |
| By explosions of powder, | ..... | 5 | 5 |
| Miscellaneous, inside, | 1 | 8 | 9 |
| Miscellaneous, outside, | 2 | 2 | 4 |
| Totals, | 53 | 125 | 178 |

TABLE F.—Nationality of Persons Killed annd Injured.

| | Polish. | Irish. | American. | English. | Welsh. | Hungarian. | Italian. | Austrian. | German. | Slavish. | Russian. | Grecian. | Scotch. | Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Killed, | 8 | 12 | 3 | 10 | 5 | 5 | 4 | 2 | 1 | 3 | .... | .... | .... | 53 |
| Injured, | 29 | 20 | 21 | 14 | 17 | 6 | 6 | 4 | 2 | 1 | 2 | 2 | 1 | 125 |
| Totals, | 37 | 32 | 24 | 24 | 22 | 11 | 10 | 6 | 3 | 4 | 2 | 2 | 1 | 178 |

## Remarks on Fatal Accidents.

Fifty-three fatal accidents occurred in this district during the year. Of these, 38, or 71.7 per cent. were caused by falls of coal and rock, and the most of them at or near the faces of breasts and gangways.

Many of them occurred shortly after unsuccessful efforts had been made to pull down the loose pieces, while of others it can be truthfully said that they were purely accidental, for oftentimes the dangerous slabs of rock are covered by a thin layer of coal which hides their treacherous character and thus frequently deceive the most careful miners.

I find a very striking similarity between many of the accidents caused by falls, hence the evidence of those who are unfortunate enough to witness them is practically the same in many cases, as will be seen from the descriptions given on table number four.

On numerous occasions during my tours through the mines I have found it necessary to question the safety of the roof, and have caused examinations to be made, only to find it "safe and solid in all places but one." A closer inspection of this "one place" gives a hol-

low sound by striking it with a drill or pick, and reveals a seam or "slip" that is found to run up for some distance into the roof, then, as is often the case, down on the other side a short distance, thus forming a small ridge of rock entirely detached from the main roof, and which would in all probability, if not taken down, fall on some one in a short time. It is an actual fact, and well known to most practical miners, that all "bells" or "sulphur balls" fall from smooth and apparently good roof shortly after examinations of them have been made.

These detached slabs occur in all kinds of roof but are met mostly where the roof is fire clay or slate, though they are quite often found in sand rock.

They are of various forms, and increase in size from the small lumps of black rock known as "nigger heads" and "bells" to large, massive slabs sometimes measuring as much as twenty to thirty feet in length and half this width, while not more than three feet thick at their centres and tapering to thin or "feather edges" on all sides. These frequently extend a short distance over the solid coal on the sides and face of breasts or gangways, thus hiding the "slips and seams," and leaving exposed the outer edge. This of course, the miners know about, and after an examination, if the slab is large and much labor required to remove it, rather than do so they conclude that "it runs thick towards the rib, or extends over the rib or the face and that will hold it."

Trusting it to be temporarily safe, they proceed to work and think no more of the roof until after firing one or more shots, they discover the seam to be somewhat wider than when first noticed. Again an inspection is made, and perhaps another effort made to pull it down. If it "comes" easily, well and good. If not, it is left and a prop or two placed under the outer edge to "steady" it. Thinking all the time that it thickens towards the face or rib, and that the props will surely secure it, and confident now of their safety, continue working with no more thought of danger from this source. It appears that it does not occur to them that the seams already noticed may continue up for a short distance, then down, and that they may be gradually removing the inner supports from under a loose piece of rock by mining out the coal.

If the coal were not removed, and the props left standing at the outside edge, we can readily see how this slab would remain in position for an indefinite period. But this is not the case as the coal temporarily sustaining it is soon taken away in the course of mining, and it as surely falls as it would if the wooden supports were suddenly removed from under it. Experienced miners, as already intimated, are frequently injured or killed by these loose pieces of rock falling, as they sometimes do, from small spaces between two or more props, and where, naturally, the least danger is suspected.

It is seldom, however, that falls occur on gangways or breast roads, except close to the faces, where work is progressing, and space for properly securing the roof is not yet made.

In several cases during the year very careful miners were killed while in the act of putting up timber to secure the roof. In such cases it must be admitted that they had some knowledge of the conditions of the roof, otherwise they would not have proceeded to timber it. At the same time some conditions which they did not suspect existed and thus they were led into an error of judgment which cost them their lives.

Where 38 out of a total of 53 accidents occur from one cause, it seems very reasonable to suppose that something must be radically wrong, either with the methods of mining or the management, which if remedied much fewer accidents would naturally follow.

This undoubtedly is a very natural conclusion, but a closer investigation of each one will show how and where each once occurred and convince anyone conversant with mining as to where the responsibility lies.

As already stated, a glance at table four will show that the most of them happened at or close to the working face, and from danger that none but those working there can guard against.

The roof in a breast or gangway may be perfectly safe when the miners enter in the morning, but with every shot fired, new ground is uncovered, and slips and seams in top coal and roof exposed, to which the miners, as a rule do not pay sufficient attention. Again, if the vein is split into two or more benches, as is generally the case, the "mining" as a rule is done in the "bottom" and requires but six or seven holes to take out a "cut" clear across the face of the breast.

This I consider is all right and a very economical and practical method of mining, and where proper care is exercised with roof and overhanging coal and rock, few accidents occur. But when the top coal is "slippy" and the miner works too far under it without temporary props to support it, and neglects to carefully examine it after each shot is fired, and reaches under it to bar out some coal loosened by a recently fired shot, when perhaps the same has spent most of its force on the now six or seven feet of undermined "top coal," it is then that it falls and kills while "barring out the bottom bench."

## Mine Foremen's Examinations.

The annual examination of applicants for mine foremen and assistant mine foremen certificates was held at Carbondale, Pa., on the 21st and 22d of July, 1897.

The board of examiners were the following:

Charles P. Ford, superintendent, Marshwood.

James E. Morrison, miner, Carbondale.

Joseph T. Roberts, miner, Jermyn.

Edward Roderick, mine inspector, Scranton.

The following were recommended for mine foreman certificates:

W. A. James, Arthur Wrightson and John T. Williams, Peckville; David D. Jones, Pully; Thos. J. Kieltz, Archbald; John P. Williams and W. H. Mincher, Olyphant; James D. Bryden, Vandling; John H. Lewis, Priceburg, and William D. Lewis, Carbondale.

The following were recommended to receive assistant foreman certificates:

Daniel Price, Thomas George and Alfred Parry, Scranton; Thomas A. Price, Taylor; John Price and Peter Flannelly, Carbondale; Robert Colburn, Priceburg; G. P. Propst and P. H. Nealon, Archbald; Slater Cairns, Winton; John Reese, Olyphant; E. G. Jones, Peckville, and William F. Sulivan, Jermyn.

TABLE I.—Showing Location, etc., of Collieries in the first Anthracite District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Leggetts Creek, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Marvine, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Eddy Creek, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Olyphant No. 2, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Grassy Island, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| White Oak, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Jermyn No. 1, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| No. 1 Shaft, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Powderly, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| No. 3 Shaft, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Coal Brook, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Racket Brook, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Clinton, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Glenwood, | Hillside Coal and Iron Co., | Lackawanna, | W. A. May, | Scranton. |
| Erie, | Hillside Coal and Iron Co., | Lackawanna, | W. A. May, | Scranton. |
| Keystone, | Hillside Coal and Iron Co., | Lackawanna, | W. A. May, | Scranton. |
| Forest City, | Hillside Coal and Iron Co., | Susquehanna, | W. A. May, | Scranton. |
| Clifford, | Hillside Coal and Iron Co., | Susquehanna, | W. A. May, | Scranton. |
| Richmond No. 3, | Elk Hill Coal and Iron Co., | Lackawanna, | W. H. Richmond, | Scranton. |
| Richmond No. 4, | Elk Hill Coal and Iron Co., | Lackawanna, | W. H. Richmond, | Scranton. |
| Mt. Jessup, | Mt. Jessup Coal Co., | Lackawanna, | Chas P. Ford, | Marshwood. |
| Moosic Mt., | Moosic Mt. Coal Co., | Lackawanna, | Chas P. Ford, | Marshwood. |
| No. 1 Shaft, | Pennsylvania Coal Co., | Lackawanna, | George B. Smith, | Dunmore. |
| Gipsy Grove, | Pennsylvania Coal Co., | Lackawanna, | George B. Smith, | Dunmore. |
| Gipsy Grove Washery, | Pennsylvania Coal Co., | Lackawanna, | George B. Smith, | Dunmore. |
| Storrs, | Del., Lack'a & W. R. R. Co., | Lackawanna, | W. R. Storrs, | Scranton. |
| Lackawanna, | Lackawanna Coal Co., | Lackawanna, | O. S. Johnson, | Scranton. |
| Johnsons, | Johnson's Coal Co., | Lackawanna, | George D. Kingsley, | Peckville. |
| Ontario, | N. Y. & Scranton Coal Co., | Lackawanna, | Clarence Sturges, | Scranton. |
| Pancoast, | Pancoast Coal Co., | Lackawanna, | Charles D. Sanderson, | Throop. |
| Simpson, | North West Coal Co., | Lackawanna, | J. G. Shepherd, | Scranton. |
| Sterrick Creek, | Sterrick Creek Coal Co., | Lackawanna, | John R. Bryden, | Scranton. |
| Edgerton, | Edgerton Coal Co., | Lackawanna, | J. G. Shepherd, | Scranton. |
| Blue Ridge, | Blue Ridge Coal Co., | Lackawanna, | J. N. Rice, | Scranton. |
| Dolph, | Dolph Coal Co., | Lackawanna, | W. G. Robertson, | Scranton. |
| Forest Mine, | Forest Mining Co., | Lackawanna, | E. S. Jones, | Archbald. |
| Riverside, | Riverside Coal Co., | Lackawanna, | J. N. Rice, | Scranton. |
| Murrays, | Murrays Coal Co., | Lackawanna, | M. J. Murray, | Dunmore. |
| Pierce, | Pierce Coal Co., | Lackawanna, | Davy Morgan, | Winton. |
| Franklin, | Franklin Coal Co., | Lackawanna, | H. H. Hollister, | Avoca. |
| Russell B., | Russell B. Coal Co., | Lackawanna, | Frank Christian, | Scranton. |
| Thomas Waddell, | | Lackawanna, | J. N. Rice, | Scranton. |

TABLE II.—Gives the total number of tons of coal mined in each colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the First Anthracite District for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat.* | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Delaware and Hudson Canal Co. | | | | | | | | | | | | | |
| Leggetts Creek, | Lackawanna, | 218,749 | 18,632 | 3,454 | 215,294 | 206.00 | 522 | 5 | 4 | 6,833 | 24 | 61 | ..... |
| Marvine, | Lackawanna, | 288,960 | 20,448 | 2,176 | 286,784 | 207.25 | 582 | 2 | 6 | 8,620 | 21 | 77 | ..... |
| Eddy Creek, | Lackawanna, | 184,222 | 12,550 | 2,130 | 182,089 | 200.75 | 641 | 1 | 4 | 8,285 | 6 | 54 | ..... |
| Olyphant, | Lackawanna, | 95,255 | 16,879 | 1,591 | 93,664 | 127.00 | 521 | ..... | 3 | 3,982 | 4 | 50 | ..... |
| Grassy Island, | Lackawanna, | 193,708 | 17,248 | 2,730 | 190,977 | 204.00 | 468 | 1 | 1 | 6,508 | 21 | 53 | 1 |
| White Oak, | Lackawanna, | 219,735 | 2,856 | 2,583 | 217,152 | 204.50 | 561 | ..... | 1 | 5,247 | 9 | 54 | 1 |
| Jermyn No. 1, | Lackawanna, | 249,077 | 14,339 | 2,861 | 246,215 | 198.25 | 583 | 2 | 1 | 5,633 | 4 | 38 | ..... |
| No. 1 Shaft, | Lackawanna, | 72,572 | 1,500 | ..... | 72,572 | 190.00 | 354 | 2 | ..... | 3,716 | 3 | 49 | ..... |
| Powderly, | Lackawanna, | 82,722 | 15,000 | ..... | 82,722 | 191.75 | 287 | ..... | 3 | 4,669 | 15 | 34 | ..... |
| No. 3 Shaft, | Lackawanna, | 30,589 | 5,500 | ..... | 30,589 | 189.75 | 151 | ..... | ..... | 1,816 | 9 | 17 | ..... |
| Coal Brook, | Lackawanna, | 282,319 | 6,572 | 756 | 281,563 | 202.25 | 769 | 1 | 7 | 10,870 | 10 | 78 | 3 |
| Racket Brook, | Lackawanna, | 167,115 | 2,000 | ..... | 167,115 | 209.25 | 62 | ..... | ..... | ..... | 5 | 1 | ..... |
| Clinton, | Lackawanna, | 164,716 | 6,875 | 1,768 | 162,947 | 200.50 | 403 | ..... | 3 | 7,157 | 10 | 42 | ..... |
| Totals and averages, | ..... | 2,249,739 | 140,396 | 20,052 | 2,229,683 | 194.70 | 5,904 | 14 | 33 | 73,336 | 141 | 608 | 5 |
| Hillside Coal and Iron Co. | | | | | | | | | | | | | |
| Glenwood, | Lackawanna, | 123,983 | 8,450 | 2,707 | 112,825 | 133.50 | 448 | 2 | 3 | 4,861 | 10 | 38 | ..... |
| Erie, | Lackawanna, | 133,105 | 9,679 | 3,465 | 119,961 | 133.50 | 421 | 1 | 6 | 5,153 | 24 | 48 | 1 |
| Keystone, | Lackawanna, | 36,125 | 1,066 | ..... | 35,059 | 133.50 | 114 | ..... | ..... | 1,183 | 2 | 19 | ..... |
| Forest City, | Susquehanna, | 334,808 | 12,062 | 7,479 | 206,446 | 133.50 | 786 | 1 | 6 | 13,238 | 22 | 69 | 6 |
| Clifford, | Susquehanna, | 141,680 | 8,657 | 3,400 | 241,810 | 133.50 | 448 | ..... | 5 | 6,486 | 11 | 53 | 2 |
| Totals and averages, | ..... | 769,701 | 39,914 | 17,051 | 716,100 | 133.50 | 2,217 | 4 | 20 | 30,921 | 69 | 227 | 9 |

* This is reported as culm and is not figured in reporting total production in tons of coal.

TABLE II.—Continued.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat.* | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Elk Hill Coal and Iron Co. | | | | | | | | | | | | | |
| Richmond No. 3, | Lackawanna, | 17,587 | 2,000 | 1,480 | 14,107 | 58.25 | 112 | ..... | ..... | 254 | 11 | 8 | 1 |
| Richmond No. 4, | Lackawanna, | 133,018 | 7,000 | 1,825 | 124,123 | 174.60 | 298 | ..... | 1 | 4,556 | 4 | 38 | ..... |
| Totals and averages, | | 150,605 | 9,000 | 3,305 | 138,230 | 116.42 | 410 | ..... | 1 | 4,810 | 15 | 46 | 1 |
| Mt. Jessup and Moosic Mt. Coal Co. | | | | | | | | | | | | | |
| Mt. Jessup, | Lackawanna, | 90,714 | 11,000 | 1,227 | 78,487 | 161.30 | 318 | 1 | 1 | 2,430 | 23 | 31 | 2 |
| Moosic Mt., | Lackawanna, | 100,988 | 1,168 | 1,519 | 98,301 | 146.50 | 241 | ..... | ..... | 4,216 | 6 | 32 | ..... |
| Totals and averages, | | 191,702 | 12,168 | 2,746 | 176,788 | 153.90 | 559 | 1 | 1 | 6,646 | 29 | 63 | 2 |
| Pennsylvania Coal Co. | | | | | | | | | | | | | |
| No. 1, | Lackawanna, | 135,118 | 4,511 | ..... | 130,607 | 129.75 | 457 | 4 | 9 | 5,630 | 3 | 35 | 2 |
| Gipsy Grove, | Lackawanna, | 130,666 | 5,837 | ..... | 124,829 | 157.25 | 353 | ..... | 5 | 4,017 | 3 | 35 | ..... |
| Gipsy Grove Washery, | Lackawanna, | 60,965 | 1,481 | ..... | 59,484 | 133.90 | 25 | ..... | ..... | ..... | 1 | 1 | 1 |
| Totals and averages, | | 326,749 | 11,829 | ..... | 314,920 | 140.30 | 835 | 4 | 14 | 9,647 | 7 | 71 | 3 |
| Storrs, | Lackawanna, | 478,485 | 30,813 | 2,826 | 444,845 | 179.60 | 1,070 | 1 | 13 | 15,895 | 23 | 112 | 3 |
| Lackawanna, | Lackawanna, | 199,360 | 30,000 | 2,958 | 196,401 | 177.60 | 643 | ..... | 4 | 7,294 | 27 | 66 | 1 |
| Johnson, | Lackawanna, | 189,907 | 21,750 | 1,254 | 188,653 | 194.10 | 790 | 5 | 5 | 10,693 | 23 | 80 | 2 |
| Ontario, | Lackawanna, | 201,050 | 12,500 | 2,614 | 185,936 | 183.10 | 784 | 1 | 5 | 10,500 | 14 | 59 | 4 |
| Pancoast, | Lackawanna, | 192,269 | 31,623 | 2,699 | 189,570 | 185.50 | 632 | 4 | 6 | 8,820 | 24 | 69 | ..... |
| Simpson, | Lackawanna, | 187,587 | 11,263 | 679 | 175,645 | 146.30 | 494 | 2 | 5 | 5,325 | 22 | 96 | 3 |
| Sterrick Creek, | Lackawanna, | 142,408 | 6,500 | 2,674 | 133,234 | 122.10 | 606 | 4 | 3 | 6,808 | 18 | 37 | 2 |
| Edgerton, | Lackawanna, | 142,031 | 6,935 | 528 | 134,568 | 127.50 | 299 | 6 | 2 | 4,051 | 8 | 64 | 3 |
| Blue Ridge, | Lackawanna, | 126,569 | 6,387 | 477 | 126,092 | 161.30 | 575 | 3 | 2 | 6,954 | 14 | 40 | 2 |
| Forest Mining, | Lackawanna, | 225,622 | 21,900 | 1,539 | 202,183 | 127.10 | 714 | 1 | 2 | 6,409 | 17 | 44 | 2 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Riverside, | Lackawanna, | 118,933 | 18,000 | ..... | 100,933 | 152.50 | 402 | ..... | 6 | 5,095 | 9 | 28 | ..... |
| Murrays, | Lackawanna, | 57,490 | 1,450 | 3,623 | 52,417 | 191.75 | 93 | 1 | ..... | 1,840 | 3 | 18 | ..... |
| Pierce, | Lackawanna, | 86,268 | 1,800 | 113 | 84,355 | 195.50 | 243 | 1 | 1 | 2,064 | 10 | 28 | 1 |
| Franklin, | Lackawanna, | 27,416 | 1,460 | 2,700 | 33,250 | 165.50 | 127 | ..... | 1 | 1,247 | 2 | 16 | ..... |
| Dolph, | Lackawanna, | 134,748 | 10,000 | 604 | 124,144 | 103.40 | 574 | 1 | ..... | 4,236 | 8 | 43 | 2 |
| Russell B., | Lackawanna, | 41,200 | 1,000 | 100 | 41,100 | 210.00 | 95 | ..... | 1 | 1,220 | 1 | 13 | ..... |
| Totals and averages, | | 2,561,337 | 213,351 | 25,388 | 2,413,326 | 163.92 | 8,141 | 30 | 56 | 98,451 | 223 | 813 | 25 |

Recapitulation. TABLE II.—Continued.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat.* | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs of powder used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Delaware and Hudson Canal Co., | | 2,249,739 | 140,396 | 20,052 | 2,229,683 | 194.70 | 5,904 | 14 | 33 | 73,336 | 141 | 608 | 5 |
| Hillside Coal and Iron Co., | | 769,701 | 39,914 | 17,051 | 716,100 | 133.50 | 2,217 | 4 | 20 | 30,921 | 69 | 227 | 9 |
| Elk Hill Coal and Iron Co., | | 150,605 | 9,000 | 3,305 | 138,230 | 116.40 | 410 | ..... | 1 | 4,810 | 15 | 46 | 1 |
| Mt. Jessup Moosic Mt. Coal Co., | | 191,702 | 12,168 | 2,746 | 176,788 | 153.90 | 559 | 1 | 1 | 6,646 | 29 | 63 | 2 |
| Pennsylvania Coal Co., | | 326,749 | 11,829 | ..... | 314,920 | 140.30 | 835 | 4 | 14 | 9,647 | 7 | 71 | 3 |
| Miscellaneous coal companies, | | 2,561,337 | 213,381 | 25,388 | 2,413,326 | 163.90 | 8,141 | 30 | 56 | 98,451 | 223 | 813 | 25 |
| Totals and averages, | | 6,249,833 | 426,688 | 68,542 | 5,989,047 | 165.44 | 18,066 | 53 | 125 | 223,811 | 484 | 1,828 | 45 |

TABLE III.—Showing the number of each class of employes at each colliery in the First Anthracite District, during the year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | Occupations of Persons Employed Outside. | | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Miners. | Miners' laborers. | Drivers and runners. | Doorboys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers, and clerks. | Total outside. | | |
| **Delaware and Hudson Canal Co.** | | | | | | | | | | | | | | | | |
| Leggetts Creek | 2 | 120 | 120 | 71 | 17 | 49 | 379 | 1 | 5 | 12 | 70 | 55 | ..... | 143 | | 522 |
| Marvine | 1 | 146 | 146 | 85 | 19 | 46 | 443 | 1 | 8 | 12 | 62 | 56 | ..... | 139 | | 582 |
| Eddy Creek | 2 | 170 | 192 | 53 | 15 | 70 | 502 | 1 | 6 | 3 | 76 | 48 | 1 | 139 | | 641 |
| Olyphant No. 2 | 1 | 125 | 136 | 50 | 35 | 71 | 418 | 1 | 5 | 9 | 37 | 50 | 1 | 103 | | 521 |
| Grassy Island | 1 | 130 | 130 | 32 | 14 | 34 | 341 | 1 | 4 | 15 | 39 | 48 | ..... | 127 | | 468 |
| White Oak | 1 | 224 | 108 | 71 | 9 | 25 | 438 | 1 | 3 | 6 | 57 | 56 | ..... | 123 | | 561 |
| Jermyn No. 1 | 1 | 190 | 184 | 52 | 23 | 31 | 481 | 1 | 5 | 6 | 55 | 35 | ..... | 102 | | 583 |
| No. 1 shaft | 1 | 166 | 35 | 54 | 16 | 38 | 310 | 1 | 4 | 3 | 6 | 29 | 1 | 44 | | 354 |
| Powderly | 1 | 166 | 9 | 22 | 4 | 46 | 248 | 1 | 3 | 5 | 7 | 32 | 1 | 39 | | 287 |
| No. 3 Shaft | 1 | 58 | 19 | 22 | 5 | 12 | 117 | 1 | 2 | 4 | 6 | 21 | ..... | 34 | | 151 |
| Coal Brook | 3 | 284 | 126 | 84 | 12 | 52 | 561 | 1 | 5 | 9 | 100 | 93 | ..... | 208 | | 769 |
| Racket Brook | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 2 | 30 | 27 | 1 | 62 | | 62 |
| Clinton | 2 | 103 | 115 | 43 | 14 | 27 | 304 | 1 | 4 | 6 | 39 | 49 | ..... | 99 | | 403 |
| Total | 17 | 1,882 | 1,320 | 639 | 183 | 501 | 4,542 | 13 | 55 | 95 | 604 | 589 | 6 | 1,362 | | 5,904 |
| **Hillside Coal and Iron Co.** | | | | | | | | | | | | | | | | |
| Glenwood | 2 | 119 | 115 | 50 | 16 | 29 | 331 | 1 | 3 | 10 | 60 | 42 | 1 | 117 | | 448 |
| Erie | 2 | 110 | 110 | 45 | 7 | 28 | 302 | 1 | 5 | 11 | 73 | 27 | 2 | 119 | | 421 |
| Keystone | 1 | 29 | 29 | 15 | ..... | 4 | 78 | 1 | 2 | 3 | 18 | 12 | 1 | 36 | | 114 |
| Forest City | 2 | 239 | 239 | 85 | 13 | 66 | 644 | 1 | 7 | 12 | 63 | 56 | 3 | 142 | | 786 |
| Clifford | 1 | 128 | 96 | 49 | 3 | 20 | 297 | 1 | 6 | 8 | 64 | 70 | 2 | 151 | | 448 |
| Total | 8 | 625 | 589 | 244 | 39 | 147 | 1,672 | 5 | 23 | 43 | 278 | 207 | 9 | 565 | | 2,217 |

TABLE III.—Continued.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Miners. | Miners' laborers. | Drivers and runners. | Doorboys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers, and clerks. | Total outside. | |
| **Elk Hill Coal and Iron Co.** | | | | | | | | | | | | | | | |
| Richmond No. 3, | 1 | 18 | 18 | 4 | ..... | 14 | 55 | 1 | 4 | 10 | 25 | 15 | 2 | 57 | 112 |
| Richmond No. 4, | 1 | 80 | 90 | 28 | 11 | 16 | 226 | 2 | 5 | 3 | 45 | 15 | 2 | 72 | 298 |
| Total, | 2 | 98 | 108 | 32 | 11 | 30 | 281 | 3 | 9 | 13 | 70 | 30 | 4 | 129 | 410 |
| **Mt. Jessup and Moosic Mt. Coal Co.** | | | | | | | | | | | | | | | |
| Mt. Jessup, | 2 | 75 | 75 | 26 | 10 | 18 | 206 | 1 | 5 | 12 | 82 | 6 | 6 | 112 | 318 |
| Moosic Mt., | 1 | 80 | 83 | 30 | 4 | 9 | 207 | 1 | 5 | 6 | ..... | 17 | 5 | 34 | 241 |
| Total, | 3 | 155 | 158 | 56 | 14 | 27 | 413 | 2 | 10 | 18 | 82 | 23 | 11 | 146 | 559 |
| **Pennsylvania Coal Co.** | | | | | | | | | | | | | | | |
| No. 1, | 2 | 136 | 143 | 29 | 5 | 15 | 330 | 1 | 3 | 15 | 67 | 40 | 1 | 127 | 457 |
| Gipsy Grove, | 1 | 106 | 106 | 34 | 8 | 14 | 269 | 1 | 2 | 7 | 45 | 28 | 1 | 84 | 353 |
| Gipsy Grove Washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 6 | 3 | 15 | ..... | 25 | 25 |
| Total, | 3 | 242 | 249 | 63 | 13 | 29 | 599 | 3 | 5 | 28 | 115 | 83 | 2 | 236 | 835 |
| Storrs, | 3 | 297 | 304 | 105 | 19 | 115 | 843 | 1 | 7 | 20 | 94 | 103 | 2 | 227 | 1,070 |
| Lackawanna, | 2 | 174 | 174 | 70 | 11 | 55 | 486 | 1 | 7 | 18 | 83 | 45 | 3 | 157 | 643 |
| Johnson, | 2 | 228 | 228 | 73 | 15 | 72 | 618 | 1 | 12 | 15 | 80 | 61 | 3 | 172 | 790 |
| Ontario, | 2 | 234 | 225 | 48 | 11 | 46 | 566 | 1 | 6 | 14 | 118 | 75 | 4 | 218 | 784 |
| Pancoast, | 3 | 150 | 150 | 69 | 24 | 59 | 455 | 1 | 6 | 14 | 96 | 57 | 3 | 177 | 632 |

| | | |

Recapitulation. TABLE III.—Continued.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers, and clerks. | Total outside. | |
| Delaware and Hudson Canal Co., | 17 | 1,882 | 1,320 | 639 | 183 | 501 | 4,542 | 13 | 35 | 95 | 604 | 589 | 6 | 1,362 | 5,904 |
| Hillside Coal and Iron Co., | 8 | 625 | 589 | 244 | 39 | 147 | 1,652 | 5 | 13 | 43 | 278 | 207 | 9 | 765 | 2,417 |
| Elk Hill Coal and Iron Co., | 3 | 98 | 108 | 32 | 11 | 30 | 281 | 3 | 9 | 13 | 70 | 30 | 4 | 129 | 410 |
| Mt. Jessup & Meeosic Mt. Coal Co., | 3 | 155 | 158 | 56 | 14 | 24 | 410 | 2 | 10 | 18 | 82 | 33 | 11 | 146 | 559 |
| Pennsylvania Coal Co., | 33 | 242 | 249 | 63 | 13 | 29 | 599 | 3 | 5 | 9 | 115 | 83 | 8 | 236 | 835 |
| Miscellaneous coal companies, | 35 | 2,198 | 2,254 | 684 | 161 | 565 | 5,897 | 19 | 99 | 167 | 1,183 | 733 | 43 | 2,244 | 8,141 |
| Total, | 68 | 5,200 | 4,678 | 1,718 | 421 | 1,299 | 13,384 | 45 | 201 | 364 | 2,332 | 1,665 | 75 | 4,682 | 18,066 |

TABLE IV.—List of fatal accidents that occurred in and about the mines of the First Anthracite District for the year ending December 31, 1897.

| Date of Accident. | Name of Person. | Occupation. | Age. | Widows. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|
| Jan. 8, | Mike Gu'a, | Laborer, | 22 | .... | .... | Edgerton, | Mayfield, Lacka., | Killed by a fall of coal. |
| 13, | Charles Sulta, | Miner, | 45 | .... | .... | Pierce, | Archbald, Lacka., | Killed by a fall of top coal. |
| 16, | Thomas Kish, | Laborer, | 32 | .... | .... | Simpson, | Fell twp., Lacka., | Instantly killed by a fall of rock on a gangway. |
| 23, | Thomas Perkins, | Laborer, | 41 | 1 | 2 | Jermyn No. 1, | Jermyn, Lacka., | Fatally injured and died while his leg was being amputated. |
| 23, | Thomas Waite, | Laborer, | 30 | .... | .... | Coal Brook, | Carbondale, Lack., | Instantly killed by falling under a trip of loaded cars on which he had ridden from his work. |
| 26, | John T. Coleman, | Miner, | 54 | 1 | 4 | Leggetts Creek, | Scranton, Lack., | Instantly killed by a fall of rock at the face of his working place. |
| 26, | Daniel Melvin, | Carpenter, | 64 | 1 | 4 | No. 2, | Forest City, Lack., | Struck and instantly killed by a falling boiler stack. During a high gale one of four guy ropes broke and let the stack fall just as he was passing. |
| 26, | George Boroski, | Laborer, | 40 | 1 | 6 | Blue Ridge, | Peckville, Lack., | Struck and killed by a car which ran away down a culm plane. The headman stated that the car came with such speed against the head block as to cause it to pass over it and down the plane where it struck Boroski. |
| Feb. 6, | Mike Jedalouis, | Laborer, | 35 | .... | .... | Pancoast, | Throop, Lack., | Struck and instantly killed by flying coal from a shot which blew through a pillar. |
| Mar. 1, | John Plowright, | Laborer, | 24 | .... | .... | Johnson No. 1, | Priceburg, Lack., | Fatally injured by a fall of rock. Died on the following day. The breast in which he was employed had just broken into an old one near the face. The assistant foreman, who had just come into the place, inquired of the miner if the roof at the "face" was safe, to which he replied that he had twice tried to pull it down that day but had failed, hence concluded it was safe. Shortly after this, while the laborer was shoveling coal back from the face this safe (?) piece of roof fell on him. |

TABLE IV.—Continued.

| Date of Accident. | Name of Person. | Occupation. | Age. | Widows. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|
| 4, | Edward Angwin, ..... | Miner, ..... | 59 | 1 | .... | No. 1 Shaft, ..... | Dunmore, Lack.,.. | Fatally injured by a fall of rock. Died in two days afterward. He had tried to pull down a piece of rock that projected over the track, but failed, as it was binding on a prop under the centre of it. To remove this difficulty he placed another prop inside of this one, and then proceeded to remove the first, and while doing this the slab suddenly fell, fractured two of his ribs and forced them into his lungs. |
| 9, | David R. Jones, ..... | Miner, ..... | 52 | 1 | .... | Johnsons No. 2, ..... | Priceburg, Lack.,. | Instantly killed by a fall of rock which occurred while he was nailing a plank on a prop. He was repairing his chute and had it about completed, but while nailing a plank to the bottom of a prop that was standing under a slippy piece of rock he loosened it and caused the rock to fall. |
| 11, | Raphael Mondana, ..... | Laborer, ..... | 30 | 1 | .... | Forest Mining Co., .... | Archbald, Lack., . | Fatally injured by a fall of coal. Died in a few hours afterward. |
| 18, | James Nolan, ..... | Laborer, ..... | 25 | .... | .... | Marvine, ..... | Scranton, Lack., .. | Fatally injured by an explosion of gas at the face of a breast in which he was working. Died on the following day. |
| 19, | Anthony Laughney, ..... | Miner, ..... | 60 | .... | .... | Grassy Island, ..... | Olyphant, Lack.,.. | Instantly killed by a fall of bell-shaped rock at the face of a breast. |
| April 7, | Michael Gusy, ..... | Laborer, ..... | 31 | .... | .... | No. 1 Shaft, ..... | Dunmore, Lack., .. | Instantly killed by a fall of rock while breaking a large lump of coal. |
| 29, | Boniful Bigidofski, ..... | Laborer, ..... | 26 | 1 | 1 | Johnsons No. 2, ..... | Priceburg, Lack.,. | Struck by a falling slab of rock and instantly killed. |
| May 1, | John Gombine, ..... | Footman, ..... | 27 | 1 | 1 | No. 1 Shaft, ..... | Dunmore, Lack.,.. | Caught between carriage and shaft lining and instantly killed. |
| 10, | Michael Barrett, ..... | Miner, ..... | 38 | 1 | 4 | No. 2 Shaft, ..... | Dunmore, Lack.,.. | Fatally injured and died shortly afterward by coal from a shot that blew through a pillar. |
| 24, | Michael Murphy, ..... | Track layer, ..... | .... | .... | .... | No. 1 Tunnel, ..... | Carbondale, Lack., | Head forced against the rib by a mine rail and skull crushed, causing instant death. |
| June 3, | John Pilner, ..... | Driver, ..... | 24 | .... | .... | Simpson, ..... | Fell twp., Lack.,.. | Fatally injured by falling under a trip of cars; died on the following day. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 4, | Alexander Green, | Miner, | 49 | .... | .... | Glenwood, | Mayfield, Lack., | Fatally injured by a fall of rock near face of gangway; died shortly after. |
| | 21, | William Limon, | Miner, | 66 | 1 | .... | Jermyn No. 1, | Jermyn, Lack., | Fatally injured by a fall of coal; died on the following day. |
| | 30, | William Court, | Sinker, | 27 | .... | .... | New Leggetts Shaft, | Scranton, Lack., | Fatally injured by a fall of slippy rock from the side of a new shaft; died the following night. |
| July | 10, | William Price, | Miner, | 32 | .... | .... | Leggetts Creek, | Scranton, Lack., | These two men were instantly killed by a fall of rock. |
| | 10, | Adam Ladolan, | Laborer, | 33 | 1 | 5 | Leggetts Creek, | Scranton, Lack., | |
| | 15, | Albert Jones, | Bell ringer, | 17 | .... | .... | Johnsons No. 1, | Priceburg, Lack., | Instantly killed by a runaway trip of cars on a slope. |
| | 17, | Thomas Morris, | Slate picker, | 13 | .... | .... | Leggetts Creek, | Scranton, Lack., | Fatally injured by falling a distance of twelve feet from a platform. |
| | 22, | James Fagan, | Engineer, | 22 | 1 | 1 | Dolph, | Peckville, Lack., | Fatally injured by being squeezed between the locomotive tender and truck. |
| | 26, | Patrick Lynett, | Miner, | 31 | 1 | .... | Murrays', | Dunmore, Lack., | Instantly killed by a fall of top coal. |
| Aug. | 3, | John Goma, | Laborer, | 32 | 1 | 2 | Edgerton, | Edgerton, Lack., | Instantly killed by a fall of rock. |
| | 5, | John Benson, | Miner, | 60 | 1 | 1 | No. 1 Shaft, | Carbondale, Lack., | Fatally injured by a fall of rock; died in a few hours. |
| | 24, | Michael Mitchell, | Miner, | 44 | 1 | 4 | Sterrick Creek, | Peckville, Lack., | Fatally injured by flying coal from a shot; died a few hours afterward. |
| | 25, | Ignotz Leonga, | Miner, | 35 | 1 | 4 | Johnsons No. 1, | Priceburg, Lack., | Instantly killed by a fall of middle rock. |
| | 31, | John Kishelis, | Laborer, | 32 | 1 | 2 | Sterrick Creek, | Peckville, Lack., | Instantly killed by a fall of bell rock from the roof on a gangway road. |
| Sept. | 9, | Samuel Treasurer, | Laborer, | 38 | .... | .... | Eddy Creek, | Olyphant, Lack., | Fatally injured by a fall of slippy rock. Died in a few hours. |
| | 21, | Tony Fick, | Laborer, | 25 | .... | .... | Edgerton, | Edgerton, Lack., | Instantly killed by a fall of rock. |
| Oct. | 11, | John Pendell, | Miner, | 50 | 1 | .... | Pancoast, | Throop, Lack., | Fatally injured by a fall of rock; died in an hour afterward. |
| | 12, | Ferdinand Sense, | Miner, | 33 | .... | .... | Sterrick Creek, | Peckville, Lack., | Fatally injured by a fall of top coal and died a month later. |
| | 27, | Robert Brown, | Miner, | 50 | .... | .... | Pancoast, | Throop, Lack., | Fatally injured by a fall of top coal. |
| | 27, | Anthony Saplak, | Laborer, | 33 | .... | .... | Ontario, | Peckville, Lack., | Instantly killed by a fall of rock on a gangway road. |
| | 29, | John Foretch, | Miner, | 46 | 1 | 2 | Mt. Jessup, | Peckville, Lack., | Instantly killed by a fall of top coal. |
| | 29, | John McLane, | Miner, | 47 | 1 | 4 | Erie, | Mayfield, Lack., | Instantly killed by a fall of "buck" or bony coal. |
| Nov. | 3, | Martin Gerritz, | Miner, | 35 | .... | .... | Highland Park, | Carbondale, Lack. | These two men were instantly killed by a fall of rock which occurred at the face of the place they were working. |
| | 3, | Andrew Monko, | Laborer, | 31 | .... | .... | Highland Park, | Carbondale, Lack. | |
| | 11, | Michael J. Kelley, | Miner, | 42 | 1 | 7 | Marvine, | Scranton, Lacka., | Killed by a fall of rock. |
| | 15, | Rees Davis, | Miner, | 45 | 1 | .... | Storrs No. 1, | Dickson City, Lack. | Instantly killed at the face of a gangway by a fall of roof. |
| | 27, | John R. Cook, | Miner, | 48 | 1 | .... | Blue Ridge, | Peckville, Lacka., | Fatally injured by a fall of rock at face of gangway; died on being brought to surface. |
| | 28, | James Gilligan, | Miner, | 52 | 1 | 3 | Glenwood, | Mayfield, Lacka., | Fatally injured by a piece of coal striking him on the back. |
| | 29, | Patrick Marion, | Miner, | 43 | 1 | 6 | Edgerton, | Edgerton, Lacka., | Instantly killed by a fall of top coal. |
| Dec. | 7, | Patrick Cawley, | Track layer, | 30 | .... | .... | Sterrick Creek, | Peckville, Lacka., | Fatally injured while riding up a plane on a trip of empty cars which jumped the track. |
| | 14, | George Didwell, | Miner, | 31 | 1 | 3 | Blue Ridge, | Peckville, Lacka., | Instantly killed by a fall of rock at the face of his working place. |
| | 31, | Stanley Yangeski, | Laborer, | 24 | .... | .... | Pancoast, | Throop, Lacka., | Instantly killed by a fall of bony coal. |

TABLE V.—List of non-fatal accidents that occurred in and about the mines of the First Anthracite District for the year ending December 31, 1897.

| Date of Accident. | | Name of Person. | Occupation. | Age. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|
| Jan. | 7, | William McDonough, | Driver, | 16 | Coal Brook, | Carbondale, Lack., | Small bone of leg fractured. |
| | 11, | Charles Webber, | Dock boss, | 23 | No. 1 Shaft, | Dunmore, Lack., | Leg badly bruised by falling under car. |
| | 12, | Mike Roscatski, | Laborer, | 26 | Pancoast, | Throop, Lack., | Injured on body by coal from a blast. |
| | 20, | John Smith, | Miner, | 40 | Ontario, | Peckville, Lack., | Scalp cut by flying coal from a blast. |
| | 26, | William Hopkins, | Runner, | 20 | Forest City, | Forest City, Lack., | Leg fractured by car jumping track. |
| Feb. | 3, | Thomas Lewis, | Miner, | 28 | Coal Brook, | Carbondale, Lack., | Bruised on body by fall of rock. |
| | 6, | Steve Shuts, | Miner, | 35 | Pancoast, | Throop, Lack., | Badly bruised by flying coal from a shot. |
| | 12, | Frank Perchinski, | Miner, | 33 | Simpson, | Fell twp., Lack., | Bruised on back by fall of rock. |
| | 25, | George Yourson, | Trackman, | 46 | Edgerton, | Edgerton, Lack., | Leg fractured by a prop falling on it. |
| Mar. | 11, | Anabola Messlee, | Laborer, | 31 | Raymond, | Archbald, Lack., | Seriously injured by a fall of coal. |
| | 13, | James Bell, | Laborer, | | Coal Brook, | Carbondale, Lack., | Knee cap displaced by a fall of rock. |
| | 15, | Anthony Kelley, | Miner, | 35 | Powderly, | Carbondale, Lack., | Hands and face cut by premature explosion of a blast. |
| | 16, | Thomas McCabe, | Miner, | 42 | Coal Brook, | Carbondale, Lack., | Injured on head and arm by flying coal from a shot. |
| | 18, | James Cousin, | Runner, | 19 | Marvine, | Scranton, Lack., | Burned by explosion of gas. |
| | 18, | Theodore Harvey, | Driver, | 17 | Marvine, | Scranton, Lack., | Burned by explosion of gas. |
| | 19, | James Lefinski, | Miner, | 30 | Riverside, | Peckville, Lack., | Head and shoulders injured by fall of rock. |
| April | 1, | Charles White, | Runner, | 30 | Blue Ridge, | Peckville, Lack., | Hand badly crushed by car passing over it. |
| | 2, | Patrick Malia, | Miner, | | Coal Brook, | Carbondale, Lack., | Both arms burned by an explosion of powder. |
| | 6, | Frank Smith, | Driver, | 16 | Sterrick Creek, | Peckville, Lack., | Head badly cut by being thrown against a car |
| | 6, | Michael Juconish, | Laborer, | 28 | No. 1 Shaft, | Dunmore, Lack., | Leg badly bruised by a car passing over it. |
| | 9, | William Smith, | Laborer, | 28 | No. 2 Shaft, | Forest City, Lack., | Struck by an empty car and severely injured. |
| | 12, | William Costello, | Driver, | 15 | Marvine, | Scranton, Lack., | Leg badly squeezed between two cars. |
| | 29, | Sylvester Mesoleski, | Laborer, | 23 | Johnsons, | Priceburg, Lack., | Injured on head and body by a fall of rock. |
| May | 4, | Neice Quinn, | Company laborer, | 70 | Eddy Creek, | Olyphant, Lack., | Leg fractured by a piece of bony coal sliding against it. |
| | 4, | Thomas Rooney, | Laborer, | 28 | Richmondale, | Richmondale, Lack., | Back and shoulders injured by a fall of rock. |
| | 5, | Raphael Dobozifski, | Miner, | 24 | Riverside, | Peckville, Lack., | Head and shoulders injured by flying coal from a shot. |
| | 8, | Thomas Wooley, | Laborer, | 20 | Marvine, | Scranton, Lack., | Small bone of leg fractured by fall of rock. |
| | 8, | Joseph Valinches, | Driver, | 16 | Clifford, | Forest City, Sus., | Thigh badly cut by car which jumped track. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 12, | Steve Cutch, | Miner, | 30 | Simpson, | Fell twp. Lack., | Leg fractured and head cut by a fall of rock. |
| | 14, | George Reagan, | Laborer, | 26 | No. 1 Tunnel, | Dunmore, Lack., | Foot injured by fall of rock. |
| | 14, | John Gillooly, | Laborer, | 40 | Olyphant No. 2, | Olyphant, Lack., | Back severely injured by flying coal from a shot. |
| | 17, | Michael Hoblack, | Miner, | 31 | Erie, | Mayfield, Lack., | Ribs fractured and back hurt by a fall of rock. |
| | 18, | John Lesk, | Miner, | 34 | Johnsons No. 1, | Priceburg, Lack., | Back badly injured by a fall of coal. |
| | 24, | Andrew Wiliozk, | Laborer, | 37 | Glenwood, | Mayfield, Lack., | Burned by explosion of powder. |
| | 24, | Mike Boreski, | Miner, | 32 | Glenwood, | Mayfield, Lack., | Burned by explosion of powder. |
| | 25, | George A. Saunders, | Laborer, | 22 | Marvine, | Scranton, Lack., | Body injured by fall of rock. |
| | 26, | Miles Higgins, | Laborer, | 38 | Gipsy Grove, | Dunmore, Lack., | Arm bruised by a fall of rock. |
| | 28, | Curtis Rolls, | Driver, | 17 | Jermyn, | Jermyn, Lack., | Kicked on stomach by a mule. |
| June | 4, | Michael Boyit, | Footboy, | 16 | Clifford, | Forest City, Sus., | Arm fractured by car which jumped track. |
| | 9, | Lawrence Brennan, | Driver, | 18 | Johnsons, | Priceburg, Lack., | Leg fractured by stepping between two cars. |
| | 9, | Owen H. Hughes, | Sinker, | 45 | Leggetts Creek, (new shaft), | Scranton, Lack., | Leg fractured by a bucket tipping. |
| | 11, | John Perwerion, | Laborer, | 31 | Storrs No. 3, | Dickson City, Lac., | Face cut by a fall of top coal. |
| | 11, | George J. Corbett, | Driver, | 23 | Franklin, | Fell twp., Lack., | Foot fractured by being caught by a door. |
| | 12, | John Richards, | Miner, | 48 | Johnsons No. 1, | Priceburg, Lack., | Leg fractured by a fall of top coal. |
| | 15, | Geo. Faulet, | Laborer, | 18 | Johnsons No. 1, | Priceburg, Lack., | Leg crushed and back injured by a fall of rock. |
| | 15, | John Conners, | Laborer, | 40 | Storrs No. 3, | Scranton, Lack., | Head, shoulders and ribs bruised by a fall of rock. |
| | 17, | Joseph Dillon, | Sinker, | 40 | Leggetts Creek (new shaft), | Scranton, Lack., | One rib fractured by a fall of coal. |
| | 24, | Dominick Sabee, | Slate picker, | 14 | No. 1, | Dunmore, Lack., | Squeezed between screen and partition. |
| | 29, | John Hughes, | Company man, | 55 | Storrs No. 1, | Dickson City, Lac., | Slightly burned by an explosion of gas. |
| | 30, | John Collicott, | Sinker, | 30 | Leggetts Creek (new shaft), | Scranton, Lack., | Ribs fractured by a fall of coal and slate. |
| July | 10, | Alex. Fishes, | Runner, | 22 | Clifford, | Forest City, Sus., | Slightly injured by a car striking him on a plane. |
| | 10, | James Morrison, | Runner, | 20 | Clifford, | Forest City, Sus., | Slightly injured by a car striking him on a plane. |
| | 10, | Abe Fox, | Runner, | 21 | Clifford, | Forest City, Sus., | Slightly injured by a car striking him on a plane. |
| | 12, | Paul Ondoswick, | Outside laborer, | | Pierce, | Menton, Lack., | Both legs and three ribs fractured by a car passing over him. |
| | 13, | Percy Grant, | Miner, | 34 | Storrs No. 2, | Dickson City, Lac., | Injured by a fall of rock. |
| | 14, | John Guest, | Miner, | 53 | Lackawanna, | Olyphant, Lack., | Collar bone fractured by a fall of rock. |
| | 15, | Thos. L. Jones, | Laborer, | 22 | Clinton, | Vandling, Lack., | Arm fractured and toes cut off by a fall of rock. |
| | 16, | Morgan Williams, | Miner, | 40 | Pancoast, | Throop, Lack., | Back and leg injured by a fall of rock. |
| | 19, | William Vaughan, | Miner, | 23 | Grassy Island, | Olyphant, Lack., | Leg fractured by a fall of rock. |
| | 19, | Patrick McGarvey, | Laborer, | 38 | Mt. Jessup, | Winton, Lack., | Head cut, back sprained and ankle dislocated by fall of rock. |
| | 27, | Valentine Galovitch, | Miner, | 42 | Sterrick Creek, | Peckville, Lack., | Cut and bruised by flying coal from a shot. |
| | 28, | Thomas Pope, | Miner, | 38 | Coal Brook, | Carbondale, Lack., | Body injured by a fall of rock. |
| | 28, | Henry Williams, | Laborer, | 31 | Storrs No. 3, | Dickson City, Lac., | Body injured by a fall of rock. |
| | 28, | Edward Purcell, | Miner, | 55 | Powderly, | Carbondale, Lack., | Body injured by a fall of coal. |
| | 28, | David Lloyd, | Miner, | 51 | Storrs No. 1, | Dickson City, Lac., | Ribs fractured and body bruised by flying coal from a shot. |
| Aug. | 2, | Adam Hill, | Laborer, | 45 | Gipsy Grove, | Dunmore, Lack., | Squeezed between cars and leg badly lacerated. |
| | 3, | Frank Scovil, | Laborer, | 28 | Edgerton, | Edgerton, Lack., | Hip dislocated by a fall of rock. |
| | 5, | Fred. Robinson, | Driver, | 24 | Blue Ridge, | Peckville, Lack., | Squeezed between two cars. |

TABLE V.—Continued.

| Date of Accident | Name of Person. | Occupation. | Age. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|
| 7, | Michael Gregor, | Miner, | 30 | Lackawanna, | Olyphant, Lack., | Wrist cut by a piece of coal sliding down a bar. |
| 9, | Ant. Popack, | Driver, | 19 | Storrs No. 2, | Dickson City, Lac., | Leg broken by cars passing over it. |
| 14, | Nicholas Murrack, | Laborer, | 29 | Clinton, | Vandling, Lack., | Injured by flying coal from a shot. |
| 17, | Michael O'Hara, | Miner, | 40 | Riverside, | Peckville, Lack., | Head and back injured by fall of rock. |
| 17, | Patrick Neary, | Laborer, | 30 | Riverside, | Peckville, Lack., | Head and back injured by fall of rock. |
| 17, | George Washburn, | Driver, | 18 | Riverside, | Peckville, Lack., | Kicked by a mule and severely injured. |
| 19, | Henry Cordner, | Miner, | 55 | Powderly, | Carbondale, Lack., | Arm fractured by a fall of rock. |
| 21, | Martin Swishkin, | Laborer, | 24 | Erie, | Mayfield, Lack., | Both hips dislocated and ankle fractured by a fall of rock. |
| 25, | Lewis Donata, | Miner, | 24 | Erie, | Mayfield, Lack., | Hands, arms and head burned by an explosion of powder. |
| 25, | Theodore Simbread, | Miner, | 28 | Erie, | Mayfield, Lack., | Hands, arms and head burned by an explosion of powder. |
| Sept. 3, | John McDonnell, | Laborer, | 26 | Gipsy Grove, | Dunmore, Lack., | Thigh fractured and otherwise severely injured by a fall of bony coal. |
| 9, | Peter Kotsavick, | Team leader, | 14 | Forest City Slope, | Forest City, Sus., | Knocked down by a mule and thigh fractured. |
| 10, | Richard Hazley, | Runner, | 17 | Ontario, | Peckville, Lack., | Hand caught by sprag and severely injured. |
| 14, | Broni Renevage, | Company laborer, | 15 | Simpson, | Fell twp., Lack., | Leg fractured by falling under car. |
| 15, | Henry Shrader, | Driver, | 15 | No. 1 Shaft, | Dunmore, Lack., | Head and shoulders squeezed between cars. |
| 15, | James Simerson, | Driver, | 16 | Clinton, | Vandling, Lack., | Thigh fractured and otherwise severely injured by a runaway car. |
| 20, | Peter Robot, | Miner, | 53 | Erie, | Mayfield, Lack., | Both legs fractured by a fall of rock. |
| 20, | John Zevanchuck, | Laborer, | 25 | Erie, | Mayfield, Lack., | Arm fractured by a fall of rock. |
| 24, | William Williams, | Miner, | 37 | Glenwood, | Mayfield, Lack., | Foot fractured and back injured by a fall of rock. |
| 27, | Patrick Dixon, | Miner, | 48 | Marvine, | Scranton, Lack., | Arm fractured by piece of rock. |
| 27, | Peter Sherwoski, | Laborer, | 42 | No. 2 Shaft, | Forest City, Sus., | Slightly injured by a fall of rock. |
| 28, | Michael Cuff, | Driver, | 14 | Gipsy Grove, | Dunmore, Lack., | Caught by stretcher and head lacerated. |
| Oct. 1, | George Yams, | Carpenter, | 42 | Simpson, | Fell twp., Lack., | Jaw broken by having been struck by a flying piece of wood from circular saw. |
| 2, | Adam Wolfe, | Miner, | 50 | Simpson, | Fell twp., Lack., | Head injured and foot fractured by a fall of coal. |
| 5, | August Brooks, | Driver, | 16 | No. 1 Shaft, | Dunmore, Lack., | Head badly cut; caught between car and roof. |
| 16, | Frank Dobish, | Laborer, | 35 | Storrs No. 2, | Dickson City, Lac., | Ankle dislocated by lump of coal sliding against it. |
| 20, | John Alexander, | Miner, | 30 | Storrs No. 1, | Dickson City, Lac., | Back and hips bruised by fall of rock. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 21, | Waslo Butscavage, | Laborer, | 37 | Forest Mine, | Archbald, Lack., | Leg injured by a fall of rock. |
| | 21, | Owen McCormick, | Miner, | 51 | Storrs No. 1, | Dickson City, Lac., | Head, face and hands burned by a slight explosion of gas. |
| | 22, | James Monaghan, | Miner, | 48 | No. 1 Tunnel, | Dunmore, Lack., | Thigh and arm cut by a fall of coal. |
| | 27, | Charles Posten, | Miner, | 43 | Pancoast, | Throop, Lack., | Severely bruised by a fall of rock. |
| | 29, | Ant. Watiski, | Laborer, | 38 | Riverside, | Peckville, Lack., | Rib fractured, back and leg injured by a fall of rock. |
| Nov. | 4, | Frank Hannon, | Laborer, | 37 | Storrs No. 1, | Dickson City, Lac., | Injured by a fall of rock. |
| | 6, | Steve Topa, | Laborer, | 23 | Forest City Slope, | Forest City, Sus., | Injured by a fall of rock. |
| | 8, | John Cerra, | Slate picker, | 16 | Coal Brook, | Carbondale, Lack., | Leg fractured by falling under culm car. |
| | 9, | John Holock, | Laborer, | 44 | Sterrick Creek, | Peckville, Lack., | Leg fractured by fall of rock. |
| | 11, | Wasil Pebrowcheck, | Laborer, | | Russell B., | Fell twp., Lack., | Leg fractured; struck by a piece of coal. |
| | 15, | Benjamin Lewis, | Miner, | 35 | Storrs No. 1, | Dickson City, Lac., | Cheek bone fractured by a fall of rock. |
| | 15, | Joseph Marslefski, | Laborer, | 27 | No. 2 Shaft, | Forest City, Sus., | Severely injured by a fall of coal. |
| | 16, | Williams Holmes, | Miner, | 55 | Storrs No. 1, | Dickson City, Lac., | Cheek bone fractured and otherwise severely injured by a premature explosion of a blast. |
| | 16, | Gus. Wiltz, | Miner, | 46 | White Oak, | Archbald, Lac., | Severely injured by a fall of slate. |
| | 17, | Peter McDonnell, | Runner, | 20 | Lackawanna, | Olyphant, Lack., | Hand crushed by a car wheel. |
| | 17, | James Hoban, | Runner, | 18 | Olyphant No. 2, | Olyphant, Lack., | Severely injured by a runaway car. |
| | 17, | Patrick Fadden, | Driver, | 15 | Olyphant No. 2, | Olyphant, Lack., | Severely injured by a runaway car. |
| | 18, | John Holler, | Laborer, | 29 | Lackawanna, | Olyphant, Lack., | Ankle fractured by a fall of coal. |
| | 18, | John O'Hara, | Miner, | 31 | Gipsy Grove, | Dunmore, Lack., | Leg injured by a fall of bony coal. |
| | 18, | Henry Prothroe, | Fire boss, | 57 | Pancoast, | Throop, Lack., | Shoulder bone fractured by falling on a piece of coal. |
| | 19, | Andrew Nicol, | Fire boss, | 35 | Pancoast, | Throop, Lack., | Badly injured by flying coal from a shot while making a tour through his section of a mine. |
| Dec. | 4, | William Healey, | Driver, | 17 | Leggetts Creek, | Scranton, Lack., | Struck by a car; arm crushed so badly that amputation was necessary. |
| | 6, | Richard Abbott, | Runner, | 17 | Eddy Creek, | Olyphant, Lack., | Fell while spragging a car and had his hand crushed. |
| | 8, | Philip Williams, | Footman, | 27 | Sturges, | Peckville, Lack., | Leg bruised by car jumping track. |
| | 22, | Edmund Thomas, | Laborer, | 30 | Eddy Creek, | Olyphant, Lack., | Burned by an explosion of gas. |
| | 22, | George Davis, | Laborer, | 22 | Eddy Creek, | Olyphant, Lack., | Burned by an explosion of gas. |
| | 24, | Anthony Zack, | Laborer, | 34 | No. 2 Shaft, | Dunmore, Lack., | Face and hands cut by a fall of bony coal. |
| | 24, | Daniel Richards, | Driver, | 15 | No. 1 Shaft, | Dunmore, Lack., | Two bones fractured by falling in way of a car. |
| | 24, | Leonard Curtis, | Miner, | 26 | Ontario, | Peckville, Lack., | Face cut by premature explosion of a blast. |
| | 28, | Stephen Strack, | Miner, | 33 | Sturges, | Peckville, Lack., | Fell while running away from a shot and was struck by flying coal and severely injured. |

# SECOND ANTHRACITE DISTRICT.

(LACKAWANNA COUNTY.)

Scranton, Pa., February 14, 1898.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I have the honor of presenting my annual report as Inspector of mines of the Second anthracite district for the year ending December 31, 1897.

The total production of coal for the year was 5,985,630 tons.

The total shipments of coal for the year was 5,456,556 tons.

Of the difference between the two quantities, part was consumed at the mines for generating steam, and part sold at the mines for local consumption.

There are 609 steam boilers in use in the district which are regularly inspected and reported according to law.

During the year, 11,551 persons were employed underground and 5,027 persons were employed on the surface, making a total of 16,578, which is in excess of the number employed during 1896.

Two thousand one hundred and twenty-two horses and mules are used in the mines and around the breakers.

5,442,325 pounds of powder and 83,463 pounds of dynamite were used during the year.

Fifty-eight fatal accidents occurred, leaving 29 wives widows and 123 children orphans; there were 149 non-fatal accidents.

Two mine fires occurred during the year which resulted in the loss of eleven lives. A detailed account of each will be found in table IV. Partly on account of these fires the list of fatal accidents is higher than for 1896, while the number of tons of coal produced per life lost and per accident is less.

The usual tables and statistics are included, together with a description of each accident; also a few general remarks.

Respectfully submitted,

H. O. PRYTHERCH,

Inspector.

TABLE A.—Showing the Production of Coal, the Number of Persons Employed by Each Company During the Year 1897, and the Average Number of Tons Produced per Employe.

| Names of Companies. | Number of tons produced. | Number of men employed. |
|---|---|---|
| Delaware, Lackawanna and Western Railroad Co., | 2,990,049 | 7,375 |
| Austin Coal Co., | 44,424 | 252 |
| Delaware and Hudson Canal Co., | 502,363 | 1,282 |
| Lackawanna Iron and Steel Co., | 409,264 | 1,268 |
| William T. Smith, | 196,512 | 516 |
| O. S. Johnson, | 112,326 | 502 |
| Pennsylvania Coal Co., | 363,116 | 963 |
| William Connell & Co., | 129,734 | 473 |
| The Connell Coal Co., | 311,404 | 834 |
| Greenwood Coal Co., Limited, | 212,394 | 798 |
| Jermyn & Co., | 259,325 | 1,071 |
| Elliott, McClure & Co., | 94,566 | 392 |
| West Ridge Coal Co., | 123,246 | 383 |
| E. D. & F. M. Spencer, | 96,533 | 221 |
| Nay Aug Coal Co., | 73,424 | 151 |
| Bull's Head Coal Co., | 9,259 | 72 |
| Columbus Colliery Co., | 57,691 | 25 |
| Spring Brook Coal Co., | ..... | ..... |
| Total, | 5,985,630 | 16,578 |

Number of tons produced per each employe, 361+.

TABLE B.—Number of Fatal Accidents and Quantity of Coal Produced per Life Lost.

| Names of Companies. | Number of fatal accidents. | Number of tons of coal produced per life lost. |
|---|---|---|
| Delaware, Lackawanna and Western Railroad Co., | 24 | 124,585 |
| Delaware and Hudson Canal Co., | 10 | 50,236 |
| Lackawanna Iron and Steel Co., | 2 | 204,632 |
| Pennsylvania Coal Co., | 1 | 363,116 |
| All other companies, | 21 | 81,944 |
| Total and average, | 58 | 103,200 |

TABLE C.—Number of Fatal and Non-Fatal Accidents and Tons of Coal Produced per Accident.

| Names of Companies. | Number of accidents. | Tons of coal produced per accident. |
|---|---|---|
| Delaware, Lackawanna and Western Railroad Co., | 91 | 32,857 |
| Austin Coal Co., | 5 | 8,885 |
| Delaware and Hudson Coal Co., | 30 | 16,745 |
| Lackawanna Iron and Steel Co., | 13 | 31,476 |
| William T. Smith, | 4 | 49,128 |
| O. S. Johnson, | 3 | 37,442 |
| Pennsylvania Coal Co., | 9 | 40,346 |
| William Connell & Co., | 3 | 43,244 |
| The Connell Coal Co., | 8 | 38,925 |
| Greenwood Coal Co., Limited, | 11 | 19,309 |
| Jermyn & Co., | 12 | 21,610 |
| Elliott, McClure & Co., | 1 | 94,566 |
| West Ridge Coal Co., | 8 | 15,406 |
| E. D. & F. M. Spencer, | 7 | 13,790 |
| Nay Aug Coal Co., | 2 | 36,712 |
| Bull's Head Coal Co., | ..... | 9,259 |
| Columbus Colliery Co., | ..... | 57,691 |
| Total and average, | 207 | 28,916+ |

TABLE D.—Classification of Accidents.

| Classification of Accidents. | Killed or fatally injured. | Injured. | Total. |
|---|---|---|---|
| Fall of coal, | 5 | 8 | 13 |
| Fall of roof, | 20 | 46 | 66 |
| Explosion of gas, | 4 | 12 | 16 |
| Explosion of blast, | 8 | 16 | 24 |
| Mules, | ..... | 12 | 12 |
| Cars, inside, | 8 | 45 | 53 |
| Cars, outside, | 1 | 1 | 2 |
| Falling down shaft, | 1 | ..... | 1 |
| Breaker machinery, | ..... | 1 | 1 |
| Careless use of powder, | ..... | 5 | 5 |
| Mine fires, | 11 | ..... | 11 |
| Sinking, | ..... | 1 | 1 |
| Miscellaneous causes, outside, | ..... | 2 | 2 |
| Total, | 58 | 149 | 207 |

TABLE E.—Occupations of Persons Killed and Injured.

| Occupation. | Killed or fatally injured. | Injured. | Total. |
|---|---|---|---|
| Miners, | 25 | 52 | 77 |
| Laborers, | 14 | 38 | 52 |
| Doorboys, | 2 | 7 | 9 |
| Drivers, | 1 | 30 | 31 |
| Drivers' helpers, | 1 | 6 | 7 |
| Outside laborers, | 1 | 4 | 5 |
| Company men, inside, | 10 | 7 | 17 |
| Headmen, | 1 | 1 | 2 |
| Fireboss, | 1 | ..... | 1 |
| Runners, | 2 | 1 | 3 |
| Slate pickers, | ..... | 2 | 2 |
| Sinkers, | ..... | 1 | 1 |
| Totals, | 58 | 149 | 207 |

TABLE F.—Nationality of Persons Killed and Injured.

| Killed and Injured. | American. | Scotch. | Irish. | Welsh. | English. | Huns. | Poles. | Italians. | Germans. | Swede. | Slavs. | Austrian. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Killed or fatally injured, | 4 | .... | 21 | 11 | 5 | 1 | 6 | 5 | 1 | 2 | 1 | 1 | 58 |
| Injured, | 19 | 1 | 45 | 33 | 8 | 1 | 28 | 5 | 6 | 1 | .... | 2 | 149 |
| Totals, | 23 | 1 | 66 | 44 | 13 | 2 | 34 | 10 | 7 | 3 | 1 | 3 | 207 |

## Other Fatalities.

During the year 1897 a number of fatalities have been reported to the mine Inspector which are not included in table 4. Among this number two resulted from natural causes, while the others befel persons not employed at the mines, or not actually engaged at the time. For these reasons such fatalities have not been tabulated, neither are they taken into account in calculating the number of tons mined per life lost. In most of these cases the coroner of the county conducted inquiries; following is a brief description:

Patrick Gallagher, Irish, 28 years of age, met his death by falling down the Manville shaft. His body was found in the sump below No. 4 Dunmore vein at 6.45 A. M., April 2, by men going to their work. He was not engaged at any work at the time of the occurrence, as he was dressed in clean clothes. No person had seen him fall. The shaft was properly secured by massive vertical gates. It is evident that he fell from the top of the shaft as part of his shoes and clothing were found adhering to the clamps of the bridle chains

of the cages which were suspended in the shaft during the night. The coroner's jury returned a verdict to the effect that Gallagher fell down the shaft, but there was no evidence to show how he got there.

Martin Melvin, Irish, 73 years of age, a pump runner employed in the Meadow Brook Shaft, was found dead at his post by John Jenkins, a company man, on May 15. The coroner's jury returned a verdict to the effect that death was due to a rupture of the aorta.

Patrick Lynn, Irish, unemployed, 19 years of age, met death by falling down Pine Brook shaft June 11, 1897. The young man was seen around the head of the shaft some time before the occurrence. He begged some food from some boys coming from the mine. He was not employed at the mine at the time. The gates enclosing the head of the shaft were closed and locked. No one witnessed him going in. His remains were found at the bottom of the shaft. The coroner's jury returned the following verdict: "The said Patrick Lynn came to his death by falling down Pine Brook shaft, that his death was accidental, and that no blame can attach to the company."

Michael Fitzpatrick, miner, Irish, 50 years of age, leaving a wife and six children, died in the West Ridge colliery, June 12. Fitzpatrick was working a chamber in the three "foot" vein. He complained of pain in the stomach when the laborer and himself retired to his box. He died 15 minutes later in the presence of a number of his fellow workmen. The coroner's jury found that his death was due to hemorrhages.

William Kerrigan, water bailer, Irish, 25 years of age, was killed by falling down Von Storch shaft, August 9. His body was found at the foot of the shaft at 4.30 A. M., August 9, by Job Jenkins, fire boss. He was last seen alive at 1.30 A. M., same day. At this time he was asleep at the foot of the culm pile some distance from the shaft. He descended the shaft at 10 P. M., August 8, for the purpose of working a shift in place of B. Berry. His brother, Anthony Kerrigan, who is employed as a pump runner, seeing that his brother was not in a fit condition to work, took him up the shaft and started him for home, telling him at the same time to come to work on his own shift in the morning.

Patrick Gallagher, unemployed, Irish, 14 years of age, was killed by falling off the cage and down the Mount Pleasant shaft, November 18. Gallagher and another boy named Maugan had been looking for work in the mine. Persons not working at the mine are not allowed down the shaft. These boys descended with the workmen in the morning, and as they were dressed in their working clothes they evaded the headman. Failing to obtain work, the boys obtained a cage to ascend the shaft. Gallagher, who was not accustomed to riding in a cage fell off and was instantly killed. An inquest was held.

## Examination of Applicants for Mine Foreman and Assistant Mine-foreman's Certificates.

The annual examination for the district was held July 21 and 22 in the Municipal building, Scranton. The board of examiners was composed of the following persons:

H. O. Prytherch, mine Inspector, Jas. Young, superintendent, P. H. Salmon and J. R. Jones, miners.

The following persons were recommended to receive mine foreman's certificates:

B. F. James, John R. James, James H. Brace, Thomas Perry, Scranton; James J. Thomas, Samuel C. Evans, Taylor, and D. F. Holleran, Pittston.

The following persons were recommended to receive assistant mine foreman's certicates:

Rudolph Lynn, John A. Morgan, Edwin Lewis, Thos. Edwards, D. J. Williams, Scranton; Wm. Bennett, Geo. Imes, Old Forge; D. J. Davies, Taylor, and John J. Walsh, Pittston.

## Remarks.

When a property underlaid by several seams of coal is about to be developed, there are two very important considerations which determine the order in which the seams will be mined, namely the demand of the market and the economic mining of the seams as a whole. In former years the market seems to have demanded the first attenton; in later years, however, the question of mining is forcing itself prominently to the front. Owing perhaps to this fact, we find that the order in which the coal seams of this district have been worked, does not tend to make the mining of the whole the least expensive. Looking at the subject from the mining engineer's standpoint one is forced to admit that on this account the mining of the remaining seams has also been rendered more difficult and less safe. In the early days of mining, the facilities for cleaning and preparing coal for market were of necessity of a primitive kind. Competition, however, was active. Owing, therefore, to these and other facts, when a coal property was about to be developed, the sections of the several boreholes were brought forward and the quality of the several coal seams compared, and the vein which would satisfy the demand of the market, at the time, irrespective of its position, was selected, and in most cases was opened and mined. Little or no importance being at that time attached to the subject of mining the remaining beds.

In other countries where coal is being mined at depths varying from 1,200 feet to 2,400 feet, and where the long wall system of mining is in vogue, the order in which the beds are mined is not of

so great moment, for with that system, no attempt is made to support the superincumbent strata, but on the contrary it is necessary that it should follow the working face and thus facilitate the cutting of the coal, and then rest on cogs and pack walls. This movement of the overlying strata does not produce fractures except where the roof is very brittle. The cavities left by the working of a seam under the conditions and by the system of mining named, are quickly filled as the floor and roof of such mines soon meet, leaving no receptacle for dangerous gases, and caving and squeezing in after years are unknown.

Where the pillar and bord system of mining is in vogue, we are confronted by different results. After the selection of the seam to be worked is made in the manner already described, it is generally found that the largest and cleanest is first worked. This bed is often (as in the second anthracite district) overlaid and underlaid by other workable beds.

When the first seam becomes exhausted the superincumbent strata is supported by pillars of coal principally, also by timbers. Another vein is then developed and mined in a similar manner. We will assume that the second vein worked is above the first one and then trace the result as the years roll by.

While the work of mining is busily carried on in the second vein, time is doing effective work on the supporting pillars and timbers of the lower vein. The pillars are deteriorating and wearing away and the timbers are decaying. Part of the cavities are filled with fire damp or other dangerous gases and other parts are filled with water. Blasting in the upper vein also has its effect on these supports. The weekly examinations of the old workings plainly show that a collapse must some day follow. As has already been noticed, the settling of the overlying strata on the cogs and pack walls in long wall mining is gradual and few fractures are made; on the contrary in pillar and bord workings, the supports gradually weaken when suddenly the collapse takes place. Any accumulation of gas is driven with hurricane force, possibly to cause a disastrous explosion. Safety lamps under these conditions offer but slim security.

The effects of such a settling of the roof in the lower vein, particularly when it is a thick one, is seriously felt in the workings of the vein above, as the same pillars support both. The work of mining has to be suspended and the more dangerous work to the workmen, and less remunerative to the operators, namely, cogging, etc., to limit the extent of the squeeze, has to be vigorously executed, resulting invariably in a shattered condition of the colliery. After this work has been accomplished, mining in the upper vein is resumed, and usually it is found that the work has been rendered more expen-

sive to the operators and less safe to those employed. Where the lower vein had caved under the unworked portion of the upper one it has been found that instead of following its usual pitch or dip, the vein has assumed an irregular one, owing to the floor having settled on pillars as well as where no pillars existed. Drainage and haulage are therefore more difficult and expensive. As to safety, it has been noticed that the effects of the collapse are found in the shape of fractures in floor and roof which in many cases are difficult to secure.

When the second vein worked is below the first, the effects are practically the same with the additional damage from water.

In a general way, these are the conditions under which coal is being mined in this district.

In some instances the Diamond, Rock, Fourteen and Clark veins have been worked out, and the surface veins above and some of the Dunmore veins below are being mined to-day. In other instances the three first named have been exhausted and the New County and Clark veins are being mined. In this way the combinations change at different collieries.

## Precautions.

Where the old workings, as well as those in course of extension are the property of one company, the former are well and carefully watched by experienced men and the employes in the latter are duly warned and withdrawn when any danger is approaching. One of the larger companies in the district, in three or four instances, is flushing culm into the old workings, thus supporting and protecting the coal pillars.

There are some instances in the district where the old workings of exhausted veins and the workings in course of extension in other veins under the same property are not owned by the same company. In such cases the parties now operating have no access to the worked out portions and therefore no examinations can be made.

## Thin Veins.

It should be stated that the surface and "Dunmore" veins are thin, and the latter gives off considerable fire damp. It is not generally known by persons outside of the mining fraternity that the mining of these thin veins is accompanied by risks peculiar to themselves. The surface veins have but a thin covering and this in most cases is soft, requiring careful timbering—more so than thicker veins at some greater depths.

The Dunmore veins being from 2 feet 6 inches to 3 feet 6 inches thick, require considerable blasting of rock for height, necessitating the use of high explosives which were almost unknown in the larger veins.

Owing to the mixed element now employed in the mines, and after noticing during tours of inspections various doubtful ways of handling and using these high explosives, I deemed it my duty to call the attention of the operators and superintendents to the fact and requesting them to comply with general rule 29. This was done by circular. In reply word was received to the effect that the manufacturers of the high explosives used in the district, do not furnish special rules such as are referred to in general rule 29 of the mine laws.

Less room is also provided in these veins, so that the risk of accidents from moving cars is greater. It is also more than probable that accidents from explosions of gas will also increase when a large number of mines are working these veins exclusively.

It will be realized from the foregoing that the conditions which surround the underground worker are constantly changing and growing more dangerous, as one bed becomes exhausted and another is developed.

During the last few years a number of the most experienced miners have been replaced by men less qualified.

If the conditions remained comparatively stationary it is more than probable that a more favorable comparison with old time mining statistics would be shown, as the result of the enaction of better mining laws and their enforcement.

It has been well established that as long as men are employed in mines, just so long will accidents continue to occur. The history of the coal mining industry of every country is made up largely of accidents, and the brighest talent has not been able to discover the means whereby they may be reduced from year to year. It has occurred to the writer that while everything is being done looking to reducing the number of these fatalities, something material could be accomplished towards lessening the suffering of the injured miner. Possibly some of the accidents which occur in the mines terminate fatally for the want of better care of the injured. There is no fault to find with the ambulances and the attention paid to the unfortunate by his fellow workers and the mine officials. If these persons were better versed in the administration of help, it would be all that could be desired. All the mines of the district are so located that a physician can reach one in a short time, and the hospitals are not far distant. Still a man injured in a distant part of a mine must suffer from loss of blood, and his injuries be aggravated by carrying before a doctor can attend him. If a number of the employes of each mine had sufficient skill to bandage so as to prevent loss of blood, and to afford the most comfort available under the circumstances while the injured person is being taken out, it is

more than probable that fewer accidents would terminate fatally, and the victims of those of a less serious nature would also reap great benefit.

There are more ways than one whereby the necessary knowledge could be imparted to a number of the employes of each colliery.

## Barrier Pillars.

Before the enaction of the mine law of 1891 little attention was paid to barrier pillars, and as a consequence there are but few mines in the district which are enclosed by a substantial pillar capable of withstanding the pressure caused by a large body of water. In fact the greater number of such barrier pillars as were left had been pierced. Should a fire take place in one of these collieries, such as would necessitate the flooding of the mine, it would under the circumstances be difficult to accomplish without affecting a number of the neighboring mines.

It must also be admitted that there is another view which is more encouraging, namely in cases where the workmen are cut off from the shafts by a fire or cave, these connections would offer a way of escape. The fact that the mine law now in force provides for substantial pillars to be left conjointly by the adjoining companies, can not possibly be expected to supply the deficiency.

## Bodies of Water in Old Workings.

It should also be noticed that bodies of water had accumulated in parts of abandoned mines before duplicate surveys of the same were required by law, and as a result, we have to-day to contend with bodies of water, the exact location and position of which are not correctly known. In some cases these rest against boundary lines.

As an extra precaution against accidents from this source I issued a circular to the operators and superintendents of the district, requesting their attention to art. III, section 9, mine law of 1891, which offers them access to the maps which are in the possession of the mine Inspector.

## Mine Fires.

Generally speaking mine fires originate from one of two causes, namely the ignition of gas blowers by blasting or otherwise, or the careless use of naked lights in the presence of combustible buildings, such as shanties, engine houses, mule barns, pump rooms, brattices, as well as in breakers situated over or near shafts or other openings conecting the surface with the workings. In writing of mine fires I have no hesitation in stating that in this connection in particular "an ounce of prevention is better than a ton of

cure." It has sometimes been recommended as a preventative that a fire boss should be employed on the night shift whose duties should consist of visiting the working places after the day shift had left the mine, to ascertain if the places are clear of fire. He should also visit all shanties, barns, engine houses and pump rooms. Even this precaution in some cases in the past has proven ineffective.

With regard to fighting mine fires, those originating from ignited blowers have to be dealt with according to the conditions under which they are found. A line of water pipes with proper connections should be carried into all places where danger can arise. These should also be frequently tried to prove their efficiency. Discarding the dangers which arise from the presence of fire damp near mine fires, it is safe to state that when it becomes necessary to reverse the direction of the air current near the location of the fire, it has been proved highly dangerous to enter into the new intake for some time after the change has gone into effect, when the fire is located at some distance from the fan.

With regard to fires originating from the second source, namely the careless use of naked lights in shanties, etc., it is recommended that such shanties, as far as possible, be replaced by others built of incombustible materials, thus reducing the risk to a minimum. Breakers situated over or near shaft or other openings, engine houses, fan houses, etc., on the surface, and mule barns and pump rooms underground will be sources of danger while they exist. It is particularly recommended that a definite plan to cope with fires originating in either of these structures be carefully outlined by the superintendent and mine foreman of each mine, and the result communicated to the fire bosses, driver bosses, etc., with clear instructions how to act. These instructions should have reference to the ventilating fan, the manipulation of existing doors, and such other doors as are erected for use in such emergencies; also the notification of the employes as to the escape way to be used under such circumstances. It is also recommended that such instructions be put in practice occasionally to prove their efficiency and acquaint those held responsible with their execution.

It must be evident to every reader that a more successful way of fighting a fire can be planned at leisure, than at a time when the conflagration is at its height, with many lives in the mine endangered at the time. The mine officials of the Second anthracite district are particularly requested to adopt these recommendations without delay as means tending to save lives and protect property.

## Ventilation.

The mines are maintained in a healthful condition, being as a rule well ventilated. The only exceptions found are where the shallow surface veins are being worked, and no fire damp has been found.

A commendable effort is being made to improve the ventilation of these, and before this report is published it is proposed to complete the improvements so that no distinction in this respect need hereafter be made.

Great care has been exercised during the year with the roof of all main and traveling roads. Accidents have occurred, thus showing that that part of the mine law which provides for their daily examination has been faithfully performed.

Falls of roof and coal are, however, responsible for the greater number of accidents, both fatal and non-fatal, as 25 fatal and 54 non-fatal are attributed to these sources. These occurred at the face of working places where the conditions change more or less with each blast. By referring to tables IV and V, where these accidents are described in detail, it will be seen that a great similarity exists. It will also be seen that the description of one will apply to a number. The suggestions which have been repeatedly made after investigations are, that more care be taken in making the examination of the face after every blast, and in the work of restanding props which have been dislodged by flying coal. It has also been found that a custom prevails among miners when a piece of doubtful roof is discovered that an attempt is immediately made to pull it down. Should the roof withstand this attempt the miner concludes that it is safe to work under, when suddenly it drops. Many accidents have resulted from this cause. The remedy is evident.

## Cars Inside.

Next in point of number to accidents resulting from falls of roof and coal come those from cars inside. During this year these have been placed prominently before those in charge of the mines with a request that every effort be exerted to reduce them as far as possible. In the mines, boys are employed for the most part to do driving work and handle cars, and some difficulty must be expected in the work of impressing upon them the necessity of exercising great care.

## Explosions of Blasts and Careless Use of Powder.

Accidents resulting from explosions of blasts and the careless use of powder occur in various ways. While the miners as a rule are careful in complying with the provisions of the mine law with regard to giving the necessary alarms before each blast, it has been found during the year 1897 that in a number of cases, after reaching a place of safety the miner grows impatient unless the blast explodes on what he considers strict time, and he is very apt to take it for granted that he squib has "missed" and while he is on his way to the face to relight it, the explosion takes place, resulting in a very serious or fatal accident.

In two or three instances it has been noticed that while miners were in a place of safety, fearing a "miss" owing in some cases to wet holes, they undertook to remain at the mouth of the cross-cut with their heads extended towards the chamber in order to listen to the squib, the flying coal from the blast striking them with fatal results while in that position.

In drilling holes in some of the smaller mines, streaks of sulphur are encountered, and because these are harder than the coal, a contraction of the hole takes place, and often the hole becomes crooked. Difficulty is therefore experienced in inserting the powder cartridge, and the men in some instances have been tempted to resort to violent means to force it, causing a premature explosion, the investigations of a number of these accidents admitting of no other solution. Suitable suggestions have been made by the Inspector in each and every case.

Five non-fatal accidents have occurred owing to the careless handling of powder near naked lights. These are violations of law.

## Explosions of Gas.

In such mines as evolve explosive gases in dangerous quantities, definite rules and methods of handling the same are framed and rigidly enforced. When the quantity evolved is small, even when the barometer is low, less attention is paid to rules and methods. The same fact is illustrated in the mining of coal from the solid and in the robbing of pillars. Statistics show that fewer accidents result from falls where the latter work is performed, although it must be admitted that it is far more dangerous than the former. The only explanation which can be offered is that the persons employed at the latter work are ever on the alert, while the former, owing to a false sense of security, grow somewhat indifferent. Where accidents have occurred from this source during the year, practical suggestions have been made to those in charge, after a searching investigation into the cause of the accident, together with the rules in vogue. Such suggestions tend to insure greater safety in the future.

## Accidents from Other Sources.

Accidents resulting from sources which have not already been enumerated in this report, such as falling down shafts, breaker machinery, cars outside, sinking, etc., etc., fortunately have not been numerous.

## Maps, Reports, Etc.

The maps of the several mines in the district have been deposited in the office of the Inspector and are extended from time to time and returned as required by law.

The monthly air reports are also received from the mine foremen before the 12th of the month for the preceding month. Reports of all accidents are promptly forwarded and the same may be said of the reports of boiler inspections.

Article XIV, section 1, reads in part: "Notices of deaths or serious injuries resulting from accidents in or about mines or collieries shall be made in writing to the Inspector of mines," etc.

Many of the non-fatal accidents described in table V are such as cannot be considered serious and therefore should not have been reported.

Table A shows that there are 16,578 persons employed in and about the mines of the district in various capacities, including mine foremen and outside foremen. It is not surprising that some of these employes should be found in the act of risking their lives by practices which cannot be justified by law or circumstances. Some miners have been found in the act of preparing powder with their lighted lamps on their caps. Some of the mine foremen could add to their own usefulness by cultivating a better system and exercising greater discipline in the discharge of their duties. By calling attention to a few who are lacking in judgment it is not intended that the remarks concerning the careless miner and indifferent foreman should apply but to a limited number.

Copies of the mine Inspector's reports, if liberally distributed, would tend to show the underground worker the conditions under which accidents have occurred in the past, thus directing his attention and observation.

## Mining Operations Discontinued.

During the year mining operations have been discontinued at one shaft only in this district, namely the Delaware and Hudson Canal Company's Von Storch shaft. At this shaft the "Clark" vein was being worked, but owing to danger threatening from a squeeze it was mutually agreed between the mine Inspector and the company's officials that it was unsafe to continue the operations.

On June 12, 1897, I visited the mine to examine a squeeze on part of McDonough's road. Its effects were visible for a distance extending some 300 feet, but no imminent danger was anticipated from the indications surrounding it at the time. So it was decided that a careful and experienced man be delegated to watch it while it was being secured by timbering and to give the alarm in case of serious indications appearing.

On August 20, 1897, I revisited the squeeze in response to a report, and found that it had made considerable progress since June 12. It was plain to be seen at this time, that the trouble originated in old workings to the right, and also that timbering was not successful in arresting it. Owing, therefore, to the more serious indications

now visible, coupled with the fact that McDonough's road was used for hauling purposes and therefore a number of men and boys were constantly passing, it was decided to suggest to the company's officials that work along the road be discontinued, owing to the dangers already described. The officials took immediate steps to act on the suggestion. Their promp action under the circumstances is worthy of commendation.

The remaining coal will be worked from the same company's adjoining colliery, the Leggitts Creek, in the First inspection district, and prepared for market at the breaker.

The Von Storch shaft will in the future as in the past, be used as the second opening to the Von Storch slope workings, and as a pumping station.

## Lawrence Breaker.

During the latter part of 1897 the Connell Coal Company discontinued operating its Lawrence breaker. The mining operations will be continued as in the past, with some material changes in the transportation, and preparation of the coal. Instead of hoisting the coal mined in the Lawrence colliery to the breaker of the same name, it will in future be run through to the same company's "William A." colliery and then hoisted to and prepared at that breaker. The coal mined in the Lawrence drifts will be lowered through the Lawrence shaft and handled and prepared in the manner already described.

## Bull's Head Colliery.

During the year 1897 one operation only has been re-started, namely the Bull's Head colliery, in the Second ward, Scranton city. The Rock vein is being worked in this mine. The company is also engaged in opening a small surface vein from a higher level on the slope. Some years ago this mine was owned and operated by the Providence Coal Company. The colliery does not promise to become very extensive.

## Improvements During 1897.

The improvements for the year 1897 are such as the description given in some of the reports already printed would apply. They consist principally of various connections made either by sinking shafts of small depths from one vein to another, or tunnel or plane connections for the purpose of ventilation, or the development of parts of properties. In short, the improvements may be described as such as become necessary from year to year in order to keep up the out-

put, and maintain adequate ventilation. By this means, also, the number of escape ways from some of the mines has been increased.

It should be noted in this connection that some of the operators are replacing their old cylinder boilers by others from which better results are expected.

Improvements are being continually introduced into the breakers to facilitate the preparation of coal for the market.

TABLE I.—Showing Location, etc., of Collieries in the Second Anthracite District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Post office Address. |
|---|---|---|---|---|
| Archbald, | Delaware, Lackawanna and Western R. R., | Lackawanna, | W. R. Storrs, general coal agent, | Scranton. |
| Bellevue Shaft, | Delaware, Lackawanna and Western R. R., | Lackawanna, | W. H. Storrs, Ass't Gen. coal agent, | Scranton. |
| Bellevue Slope, | Delaware, Lackawanna and Western R. R., | Lackawanna, | B. Hughes, mine superintendent, | Scranton. |
| Frisbin, | Delaware, Lackawanna and Western R. R., | Lackawanna, | Thos. D. Davies, assistant Supt., | Scranton. |
| Cayuga, | Delaware, Lackawanna and Western R. R., | Lackawanna, | Thos. W. Phillips, assistant Supt., | Scranton. |
| Sloan and Central, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Continental, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Dodge, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Diamond, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Tripp Shaft, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Tripp Slope, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Tripp Drift, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Hyde Park, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Manville, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Oxford, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Holden, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Hampton, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Pyne, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Taylor Shaft, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Taylor Drift, | Delaware, Lackawanna and Western R. R., | Lackawanna, | | |
| Austin Tunnel, | Austin Coal Co., | Lackawanna, | John H. Robertson, | Old Forge. |
| Dickson, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Von Storch Slope, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Von Storch Shaft, | Delaware and Hudson Canal Co., | Lackawanna, | C. C. Rose, | Scranton. |
| Capouse, | Lackawanna Iron and Steel Co., | Lackawanna, | Wm. P. Morgan, | Scranton. |
| Pine Brook, | Lackawanna Iron and Steel Co., | Lackawanna, | Wm. P. Morgan, | Scranton. |
| Mount Pleasant, | William T. Smith, | Lackawanna, | Thomas Sprague, | Scranton. |
| Green Ridge Slope, | O. S. Johnson, | Lackawanna, | | |
| Penna. No. 5 Shaft, | Pennsylvania Coal Co., | Lackawanna, | Geo. B. Smith, general superintendent, | Dunmore. |
| Bunker Hill, | Pennsylvania Coal Co., | Lackawanna, | Alex. Bryden, Gen. mine Supt., | Dunmore. |
| Old Forge No. 1, | Pennsylvania Coal Co., | Lackawanna, | Jas. Young, assistant superintendent, | Dunmore. |
| Old Forge No. 2, | Pennsylvania Coal Co., | Lackawanna, | Jas. Young, assistant superintendent, | Dunmore. |
| Meadow Brook Shaft, | William Connell & Co., | Lackawanna, | Col. E. H. Ripple Gen. Supt., | Scranton. |
| Meadow Brook Tunnel, | William Connell & Co., | Lackawanna, | Sam'l T. Jones, Gen. mine foreman, | Scranton. |
| National, | William Connell & Co., | Lackawanna, | Sam'l T. Jones, Gen. mine foreman, | Scranton. |
| "William A.", | The Connell Coal Co., | Lackawanna, | Sam'l T. Jones, Gen. Supt., | Scranton. |
| Lawrence Shaft, | The Connell Coal Co., | Lackawanna, | Sam'l T. Jones, Gen. Supt., | Scranton. |
| Lawrence, Upper Drift, | The Connell Coal Co., | Lackawanna, | Sam'l T. Jones, Gen. Supt., | Scranton. |
| Lawrence, Lower Drift, | The Connell Coal Co., | Lackawanna, | Sam'l T. Jones, Gen. Supt., | Scranton. |
| Greenwood No. 1, new shaft, | Greenwood Coal Co., | Lackawanna, | John Levering, Gen. Supt., | Scranton (Box 381). |
| Greenwood No. 1, old shaft, | Greenwood Coal Co., | Lackawanna, | | |
| Greenwood No. 1 Shaft, | Greenwood Coal Co., | Lackawanna, | | |
| Greenwood Drift, | Greenwood Coal Co., | Lackawanna, | | |
| Greenwood No. 5 Drift, | Greenwood Coal Co., | Lackawanna, | | |
| Greenwood No. 8 Drift, | Greenwood Coal Co., | Lackawanna, | | |
| Greenwood No. 12 Drift, | Greenwood Coal Co., | Lackawanna, | | |

TABLE I.—Continued.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Jermyn No. 1, | Jermyn & Co., | Lackawanna, | J. J. Jermyn, | Scranton. |
| Jermyn No. 2, | Jermyn & Co., | Lackawanna, | | |
| Jermyn No. 3, | Jermyn & Co., | Lackawanna, | | |
| Sibley, | Elliott McClure & Co., | Lackawanna, | Jas. C. McClure, | Scranton. |
| West Ridge, | West Ridge Coal Co., | Lackawanna, | E. A. Clark, | Scranton. |
| Spencer, | A. D. & E. M. Spencer, | Lackawanna, | A. D. & T. M. Spencer, | Dunmore. |
| Nay Aug, | Nay Aug Coal Co., | Lackawanna, | J. D. Caryl, | Scranton. |
| Bulls Head, | Bulls Head Coal Co., | Lackawanna, | Wm. Richmond, | Scranton. |
| Spring Brook, | Spring Brook Coal Co., | Lackawanna, | Chas. P. Ford, | Marshwood. |
| Columbus Colliery Co., | Columbus Colliery Co., | Lackawanna, | C. M. Can, | Scranton. |

TABLE NO. 2.—Gives the Total Number of Tons of Coal Mined in each Colliery, Number of Days Worked, Number of Employes, Number of Persons Killed and Injured, Number of Kegs of Pow der used, etc., in the Second Anthracite District for the Year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs of powder used. | Number of pounds of dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Archbald, | Lackawanna, | 214,838.1 | 10,950 | 1,392 | 202,496 | 183.3 | 585 | 2 | 2 | 6,838 | 400 | 14 | 77 | 1 |
| Bellevue Breaker, | Lackawanna, | 255,938.1 | 21,900 | 12,873 | 221,165 | 179.0 | 628 | 3 | 8 | 8,568 | 350 | 26 | 95 | 3 |
| Brisbin, | Lackawanna, | 198,062.3 | 10,000 | 6,157 | 181,905 | 182.5 | 478 | 1 | ..... | 5,241 | 700 | 15 | 52 | 1 |
| Cayuga, | Lackawanna, | 234,927.0 | 18,500 | 7,290 | 209,137 | 181.1 | 522 | 3 | 8 | 5,748 | 1,200 | 24 | 62 | 1 |
| Sloan and Central, | Lackawanna, | 275,955.0 | 29,900 | 528 | 245,527 | 175.5 | 458 | ..... | 10 | 5,681 | 100 | 49 | 85 | 2 |
| Continental, | Lackawanna, | 195,556.2 | 5,400 | 2,552 | 187,604 | 183.6 | 489 | 1 | 6 | 4,898 | ..... | 15 | 64 | 1 |
| Dodge, | Lackawanna, | 196,662.1 | 12,000 | 1,951 | 182,711 | 172.0 | 440 | 1 | 6 | 6,339 | ..... | 23 | 85 | 1 |
| Diamond, | Lackawanna, | 267,757.0 | 21,000 | 8,446 | 238,311 | 186.6 | 591 | 2 | 10 | 7,939 | 3,150 | 55 | 81 | 4 |
| Hyde Park, | Lackawanna, | 162,233.1 | 4,380 | 3,312 | 154,541 | 169.2 | 448 | 2 | 2 | 7,219 | ..... | 12 | 68 | ..... |
| Manville, | Lackawanna, | 66,419.0 | 6,570 | ..... | 59,849 | 192.0 | 429 | ..... | 5 | 4,294 | 3,900 | 18 | 47 | ..... |
| Oxford, | Lackawanna, | 211,431.0 | 17,558 | 51,293 | 142,580 | 185.8 | 467 | ..... | 1 | 5,079 | 600 | 19 | 91 | ..... |
| Holden, | Lackawanna, | 58,934.1 | 6,000 | 917 | 52,018 | 151.1 | 200 | 2 | 2 | 3,137 | 4,665 | 12 | 29 | ..... |
| Hampton, | Lackawanna, | 170,856.0 | 10,400 | 3,595 | 156,861 | 184.4 | 428 | 2 | 1 | 5,525 | ..... | 16 | 59 | ..... |
| Pyne, | Lackawanna, | 280,860.0 | 10,000 | 1,794 | 269,066 | 176.9 | 562 | 2 | 1 | 7,572 | 500 | 22 | 78 | 1 |
| Taylor, | Lackawanna, | 199,520.1 | 8,353 | 5,655 | 185,612 | 185.4 | 461 | 3 | 5 | 6,116 | 150 | 25 | 64 | 1 |
| Total, | ..... | 2,990,049.1 | 192,911 | 107,755 | 2,689,383 | 179.2 | 7,126 | 24 | 67 | 90,194 | 15,715 | 345 | 1,137 | 16 |
| Austin Tunnel, | Lackawanna, | 444,424.0 | 1,849 | 810 | 41,765 | 139.8 | 252 | 2 | 3 | 1,893 | 1,550 | 6 | 20 | 1 |
| Dickson Shaft, | Lackawanna, | 212,668.6 | ..... | 3,000 | 209,668 | 204.7 | 645 | 2 | 11 | 9,862 | 11,220 | 20 | 73 | ..... |
| Von Storch Shaft and Slope, | Lackawanna, | 210,674.1 | ..... | 4,503 | 206,171 | 191.0 | 637 | 8 | 9 | 7,710 | 2,938 | 29 | 73 | ..... |
| Manville, | Lackawanna, | 79,621.1 | 6,570 | ..... | 72,451 | † | ..... | ..... | ..... | ..... | 3,900 | ..... | ..... | ..... |
| Total, | ..... | 502,363.8 | 6,570 | 7,503 | 488,290 | 197.8 | 1,282 | 10 | 20 | 17,572 | 18,058 | 49 | 146 | ..... |

TABLE NO. 2.—Continued.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs of powder used. | Number of pounds of dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capouse, | Lackawanna, | 219,069.0 | 5,000 | 2,914 | 211,155 | 193.7 | 606 | 2 | 4 | 8,859 | 2,770 | 3 | 83 | ..... |
| Pine Brook, | Lackawanna, | 190,195.0 | ..... | 20,860 | 169,335 | 182.5 | 662 | ..... | 7 | 13,924 | 9,000 | 5 | 65 | 1 |
| Total, | ..... | 409,264.0 | 5,000 | 23,774 | 380,490 | 188.1 | 1,268 | 2 | 11 | 22,783 | 11,770 | 8 | 148 | 1 |
| Mount Pleasant, | Lackawanna, | 196,512.0 | ..... | 45,285 | 151,227 | 166.5 | 516 | 1 | 3 | 7,304 | 150 | 15 | 42 | 2 |
| Green Ridge Slope, | Lackawanna, | 112,326.0 | ..... | 6,100 | 106,226 | 148.2 | 502 | 1 | 2 | 6,704 | 2,400 | 21 | 55 | 1 |
| No. 5 Pennsylvania Coal Co., | Lackawanna, | 121,562.0 | 3,105 | ..... | 118,457 | 147.2 | 369 | ..... | 1 | 5,258 | 1,370 | 3 | 35 | ..... |
| Bunker Hill,* | Lackawanna, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Old Forge Breaker, | Lackawanna, | 241,554.0 | 6,238 | ..... | 235,316 | 151.0 | 594 | 1 | 7 | 8,331 | 6,494 | 10 | 55 | 2 |
| Total, | ..... | 363,116.0 | 9,343 | ..... | 353,773 | 149.1 | 963 | 1 | 8 | 13,589 | 7,864 | 19 | 90 | 2 |
| National,<br>Meadow Brook Shaft,<br>Meadow Brook Tunnel, | Lackawanna, ...<br>Lackawanna, ...<br>Lackawanna, ... | 129,734.0 | 10,976 | 11,148 | 107,610 | 163.1 | 473 | ..... | 3 | 7,634 | 4,500 | 24 | 69 | 2 |
| "William A.", | Lackawanna, | 218,623.0 | 6,000 | 5,866 | 206,757 | 135.9 | 604 | 4 | 3 | 6,655 | 2,000 | 19 | 36 | ..... |
| Lawrence, | Lackawanna, | 92,781.0 | 4,000 | ..... | 88,781 | 127.7 | 230 | 1 | ..... | 4,000 | 2,500 | 6 | 19 | ..... |
| Total, | ..... | 311,404.0 | 10,000 | 5,866 | 295,538 | 131.8 | 834 | 5 | 3 | 10,655 | 4,500 | 25 | 55 | ..... |
| Greenwood No. 1, | Lackawanna, | 144,108.1 | 12,000 | 2,166 | 129,942 | 119.7 | 525 | 2 | 6 | 7,241 | 3,560 | 16 | 83 | 1 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Greenwood No. 2, | Lackawanna, | 68,286.2 | 4,000 | ..... | 64,286 | 103.8 | 273 | 1 | 2 | 3,681 | 4,700 | 9 | 42 | ..... |
| Total, | | 212,394.3 | 16,000 | 2,166 | 194,228 | 111.7 | 798 | 3 | 8 | 10,922 | 8,200 | 25 | 125 | ..... |
| Jermyn No. 1, | Lackawanna, | 167,501.1 | 10,200 | 2,471 | 154,830 | 141.5 | 564 | 6 | 5 | 7,415 | 850 | 20 | 55 | 1 |
| Jermyn No. 2, | Lackawanna, | 91,824.1 | ..... | ..... | 91,824 | 66.2 | 507 | ..... | 1 | 3,494 | 950 | 15 | 38 | ..... |
| Total, | | 259,325.2 | 10,200 | 2,471 | 246,654 | 103.8 | 1,071 | 6 | 6 | 10,909 | 1,800 | 35 | 93 | 1 |
| Sibley, | Lackawanna, | 94,566.0 | 7,300 | 1,411 | 85,855 | 167.3 | 392 | ..... | 1 | 4,786 | 650 | 11 | 37 | ..... |
| West Ridge, | Lackawanna, | 123,246.0 | ..... | ..... | 123,246 | 115.9 | 383 | ..... | 8 | 7,004 | 5,673 | 5 | 44 | ..... |
| Spencer's Shaft, | Lackawanna, | 96,533.0 | 3,500 | 6,886 | 86,147 | 103.4 | 221 | 2 | 5 | 3,375 | 425 | 11 | 32 | ..... |
| Nay Aug Slope, | Lackawanna, | 73,424.0 | 2,000 | ..... | 71,424 | 143.2 | 151 | 1 | 1 | 1,869 | 208 | 2 | 16 | ..... |
| Bulls Head Colliery, | Lackawanna, | 9,259.0 | 370 | 631 | 8,258 | 63.0 | 72 | ..... | ..... | 501 | ..... | 2 | 13 | ..... |
| Columbus Colliery Co., | Lackawanna, | 57,691.0 | ..... | 31,249 | 26,442 | 191.0 | 25 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Spring Brook,* | Lackawanna, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Total, | | 5,985,630.0 | 276,019 | 248,248 | 5,456,556 | ..... | 16,578 | 58 | 149 | ‡5,442,325 | 83,463 | 609 | 2,122 | 28 |

* Not in operation. † See D., L. & W. R. R. Co.
‡ Pounds.

TABLE No. 3.—Showing the Number of each Class of Employes at each Colliery in the Second Anthracite District, during the Year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Doorboys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers, and clerks. | Total outside. | |
| Archbald, | 1 | 2 | 137 | 137 | 58 | 12 | 48 | 395 | 2 | 7 | 8 | 111 | 62 | ..... | 190 | 585 |
| Bellevue Shaft and Slope, | 3 | 3 | 157 | 166 | 61 | 19 | 40 | 449 | 1 | 7 | 10 | 100 | 60 | 1 | 179 | 628 |
| Brisbin, | 1 | 3 | 116 | 119 | 45 | 10 | 43 | 337 | 1 | 4 | 9 | 71 | 55 | 1 | 141 | 478 |
| Cayuga, | 1 | 2 | 129 | 136 | 61 | 7 | 45 | 381 | 1 | 9 | 9 | 72 | 49 | 1 | 141 | 522 |
| Sloan and Central, | 2 | 4 | 110 | 145 | 56 | 24 | 44 | 385 | 1 | 7 | 19 | 79 | 65 | 2 | 173 | 558 |
| Continental, | 1 | 2 | 104 | 109 | 45 | 19 | 49 | 329 | 1 | 7 | 7 | 82 | 62 | 1 | 160 | 489 |
| Dodge, | 2 | 2 | 109 | 112 | 47 | 7 | 37 | 316 | 1 | 7 | 11 | 58 | 46 | 1 | 124 | 440 |
| Diamond (Tripp Shaft and Slope), | 2 | 5 | 146 | 150 | 57 | 12 | 48 | 420 | 1 | 11 | 22 | 68 | 67 | 1 | 170 | 590 |
| Hyde Park, | 1 | 2 | 106 | 108 | 44 | 12 | 40 | 313 | 1 | 4 | 6 | 80 | 43 | 1 | 135 | 448 |
| Manville, | 1 | 4 | 105 | 105 | 43 | 20 | 39 | 317 | 1 | 5 | 10 | 62 | 33 | 1 | 112 | 429 |
| Oxford, | 1 | 2 | 90 | 92 | 33 | 17 | 42 | 277 | 1 | 8 | 5 | 67 | 47 | 2 | 130 | 407 |
| Holden, | 1 | 1 | 50 | 50 | 14 | 2 | 14 | 132 | 1 | 3 | 5 | 38 | 21 | ..... | 68 | 200 |
| Hampton, | 2 | 2 | 97 | 103 | 36 | 13 | 26 | 279 | 1 | 8 | 7 | 84 | 48 | 1 | 149 | 428 |
| Pyne, | 1 | 2 | 142 | 157 | 44 | 8 | 43 | 397 | 1 | 6 | 9 | 104 | 43 | 2 | 165 | 562 |
| Taylor, | 2 | 3 | 108 | 108 | 30 | 13 | 29 | 293 | 1 | 6 | 13 | 93 | 54 | 1 | 168 | 461 *150 |
| Total, | 22 | 39 | 1,706 | 1,797 | 674 | 195 | 587 | 5,020 | 16 | 99 | 150 | 1,169 | 755 | 16 | 2,205 | 7,375 |
| Austin Tunnel, | 2 | 1 | 55 | 84 | 24 | 2 | 13 | 181 | 1 | 4 | 9 | 32 | 22 | 3 | 71 | 252 |
| Dickson, | 2 | 4 | 156 | 156 | 104 | 26 | 71 | 519 | 1 | 5 | 13 | 58 | 49 | ..... | 126 | 645 |
| Von Storch, | 1 | 5 | 152 | 152 | 81 | 19 | 75 | 485 | 1 | 5 | 11 | 50 | 82 | 3 | 152 | 637 |
| Manville (see D., L. & W. R. R. Co.), | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Total, | 3 | 9 | 308 | 308 | 185 | 45 | 146 | 1,004 | 2 | 10 | 24 | 108 | 131 | 3 | 278 | 1,282 |

* A gang of mechanics varying in number is also employed inside and outside the mines.

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capouse, | 2 | 2 | 148 | 137 | 71 | 23 | 48 | 431 | 1 | 8 | 7 | 118 | 39 | 2 | 175 | 606 |
| Pine Brook, | 2 | 3 | 122 | 126 | 54 | 37 | 152 | 496 | 1 | 7 | 8 | 113 | 35 | 2 | 166 | 662 |
| Total, | 4 | 5 | 270 | 263 | 125 | 60 | 200 | 927 | 2 | 15 | 15 | 231 | 74 | 4 | 341 | 1,268 |
| Mount Pleasant, | 2 | 2 | 112 | 118 | 47 | 26 | 27 | 334 | 1 | 5 | 6 | 115 | 50 | 5 | 182 | 516 |
| Green Ridge Slope, | 1 | 2 | 130 | 130 | 65 | 15 | 26 | 369 | 1 | 6 | 9 | 75 | 42 | ..... | 133 | 502 |
| No. 5 Shaft, | 1 | 2 | 112 | 92 | 38 | 8 | 19 | 272 | 1 | 2 | 8 | 65 | 20 | 1 | 97 | 369 |
| Old Forge Nos. 1 and 2, | 2 | 3 | 172 | 173 | 57 | 15 | 27 | 449 | 1 | 4 | 14 | 79 | 46 | 1 | 145 | 594 |
| Total, | 5 | 5 | 284 | 265 | 95 | 23 | 46 | 721 | 2 | 6 | 22 | 144 | 66 | 2 | 242 | 963 |
| National, | 1 | 1 | 46 | 27 | 20 | 3 | 17 | 121 | | | | | | | | |
| Meadow Brook, | ..... | ..... | 20 | 12 | 10 | ..... | 11 | 53 | 1 | 6 | 11 | 95 | 51 | 2 | 166 | 473 |
| Meadow Brook Tunnel, | 1 | 1 | 63 | 45 | 18 | 3 | 3 | 133 | | | | | | | | |
| Total, | 2 | 2 | 129 | 84 | 48 | 6 | 31 | 307 | 1 | 6 | 11 | 95 | 51 | 2 | 166 | 473 |
| "William A.", | 1 | 1 | 205 | 150 | 60 | 12 | 29 | 458 | 1 | 7 | 10 | 65 | 60 | 3 | 146 | 604 |
| Lawrence Shaft, | 1 | ..... | 19 | 10 | 6 | 1 | 12 | 48 | | | | | | | | |
| Upper Drift, | ..... | ..... | 30 | 3 | 5 | 1 | 3 | 43 | 1 | 4 | 8 | 48 | 25 | ..... | 86 | 230 |
| Lower Drift, | ..... | ..... | 40 | 5 | 4 | 1 | 3 | 53 | | | | | | | | |
| Total, | 2 | 1 | 294 | 168 | 75 | 15 | 47 | 602 | 2 | 11 | 18 | 113 | 85 | 3 | 232 | 834 |
| Greenwood No. 1, | 2 | 2 | 137 | 135 | 39 | 34 | 23 | 372 | 1 | 9 | 10 | 65 | 66 | 2 | 153 | 525 |
| Greenwood No. 2, | 1 | 1 | 74 | 79 | 20 | 13 | 14 | 202 | 1 | 4 | 6 | 26 | 33 | 1 | 71 | 273 |
| Total, | 3 | 3 | 211 | 214 | 59 | 47 | 37 | 574 | 2 | 13 | 16 | 91 | 99 | 3 | 224 | 798 |
| Jermyn No. 1, | 1 | 2 | 135 | 115 | 49 | 10 | 38 | 350 | 1 | 5 | 10 | 138 | 55 | 5 | 214 | 564 |
| Jermyn No. 2, | 1 | 2 | 146 | 115 | 64 | 11 | 32 | 371 | 1 | 4 | 6 | 80 | 40 | 5 | 136 | 507 |
| Total, | 2 | 4 | 281 | 230 | 113 | 21 | 70 | 721 | 2 | 9 | 16 | 218 | 95 | 10 | 350 | 1,071 |
| Sibley, | 1 | ..... | 78 | 72 | 43 | 6 | 22 | 222 | 1 | 4 | 5 | 115 | 42 | 3 | 170 | 392 |
| West Ridge, | 1 | 3 | 91 | 97 | 37 | 12 | 47 | 288 | 1 | 5 | 7 | 54 | 27 | 1 | 95 | 383 |
| Spencer, | 2 | ..... | 39 | 39 | 34 | 5 | 20 | 139 | 2 | 6 | 6 | 25 | 40 | 3 | 82 | 221 |
| Nay Aug Slope, | 1 | ..... | 35 | 35 | 20 | 3 | 7 | 101 | 1 | 3 | 4 | 12 | 28 | 2 | 50 | 151 |

TABLE NO. 3.—Continued.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Doorboys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers, and clerks. | Total outside. | |
| Bulls Head Slope, | 1 | ..... | 18 | 10 | 4 | 2 | 6 | 41 | ..... | 2 | 2 | 13 | 12 | 2 | 31 | 72 |
| Columbus Colliery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 24 | 1 | 25 | 25 |
| Spring Brook,* | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

* Not in operation during 1897.

TABLE No. 4.—List of Fatal Accidents that Occurred in and about the Mines of the Second Anthracite District, for the Year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Widows. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|
| Jan. 7. | John McHale, | Miner, | 50 | 1 | 3 | Capouse, | Lackawanna, | Instantly killed by fall of coal. |
| 12. | Richard Edwards, | Miner, | 50 | 1 | 1 | Bellevue Shaft, | Lackawanna, | Fatally injured by premature blast; died January 26th. He had prepared a blast in the usual way and upon igniting the squib the explosion took place before he had reached a place of safety. |
| 16. | Antone Pi truzzi, | Laborer, | 28 | 1 | 1 | Spencer's Shaft, | Lackawanna, | Instantly killed by a fall of rock in face of chamber where extra precautions had been taken to secure the roof. |
| 16. | Michael Ryan, | Miner, | 36 | 1 | 6 | Archbald, | Lackawanna, | Fatally injured by a fall of rock in face of chamber. He had fired a blast and had neglected to examine the roof thereafter. A slab fell on him. Died in Moses Taylor Hospital January 19th. |
| 27. | David Thomas, | Runner, | 18 | .... | .... | Continental, | Lackawanna, | Fatally injured by cars. While unhitching a trip of cars his leg was severely injured between the bumpers of the cars. Died January 29th. |
| 29. | Victor M leski, | Laborer, | 23 | .... | .... | Greenwood No. 2, | Lackawanna, | Instantly killed by a premature blast. |
| Feb. 1. | Albert Wale, | Door boy, | 16 | .... | .... | Diamond Drift, | Lackawanna, | Wale had left his door. In another part the mine he met a trip of cars. He became confused and in endeavoring to pass he was squeezed between the cars and the rib and instantly killed. |
| 3. | Martin Nalon, | Miner, | 36 | .... | .... | Mount Pleasant, | Lackawanna, | Fatally injured by fall of top coal caused by excessive undermining and no props. He died in Lackawanna Hospital March 10, 1897. |
| 6. | Jos ph Gravitz, | Laborer, | 32 | 1 | 1 | Austin Tunnel, | Lackawanna, | Killed by fall of rock in extension to slope. Upon investigation it was learned that the miner and laborer had examined the roof a few minutes before the accident and pronounced it safe. |
| 6. | Thos. E. Williams, | Miner, | 57 | .... | 6 | Taylor Shaft, | Lackawanna, | While mining coal from the bottom bench after a shot a piece of the top bench fell, instantly killing him. |

TABLE NO. 4.—Continued.

| Date of Accident. | | Name of Person. | Occupation. | Age. | Widows. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|---|
| | 18, | Robert Jones, ..... | Miner, ..... | 30 | 1 | 5 | Cayuga, ..... ..... | Lackawanna, ..... | Fatally injured by fall of rock in face of chamber; died in Moses Taylor Hospital at 9.30 P. M., same day. |
| Mar. | 3, | John R. Edwards, ..... | Miner, ..... | 47 | 1 | 5 | "William A.", ..... | Lackawanna, .... | Fatally burned by explosion of fire damp. These men were engaged taking down top coal. They had seven yards of it down on the gangway. This confined the air passage. Gas accumulated, which was ignited by a naked light brought through mistake by the laborer. The former died March 11; the latter died March 27, 1897. |
| | 3, | Joseph Sobisky ..... | Laborer, ..... | 32 | .... | .... | "William A.", ..... | Lackawanna, .... | |
| | 9, | Patrick Iago, ..... | Company man, ... | 54 | 1 | .... | Dickson, ..... | Lackawanna, ..... | Fatally burned by explosion of fire damp. Died March 12. |
| | 9, | Patrick Banks, ..... | Miner, ..... | 45 | .... | .... | Nay Aug, ..... | Lackawanna, ..... | Fatally injured by fall of roof; died March 22 in Thompson's Hospital. |
| | 9, | Chas. Thomas, ..... | Company man, ... | 58 | .... | 6 | Von Storch Shaft, ..... | Lackawanna, ..... | Fatally injured by cars inside as he was leaving the mine; died from his injuries the following day. |
| | 25, | Henry Moreland, ..... | Miner, ..... | 40 | 1 | 5 | Holden Mine, ..... | Lackawanna, ..... | Fatally injured by flying coal from blast. Died in the Moses Taylor Hospital two days later. |
| April | 6, | John W. Jones, ..... | Miner, ..... | 32 | 1 | 3 | Cayuga, ..... | Lackawanna, ..... | Killed by fall of rock. |
| | 9, | Jenkin Beyans, ..... | Runner, ..... | 19 | .... | .... | Bellevue Slope, ..... | Lackawanna, ..... | Instantly killed by cars inside. |
| May | 1, | John Watkins, ..... | Driver's helper, .. | 14 | .... | .... | Jermyn No. 1, ..... | Lackawanna, ..... | Watkins was riding on a loaded trip of cars on a gravity road. He received injuries which terminated fatally at 8 P. M. the same day. |
| | 7, | Martin King, ..... | Miner, ..... | 24 | .... | .... | Archbald, ..... | Lackawanna, ..... | Fatally injured by flying coal from blast; died ten minutes later. |
| June | 4, | Patrick Hughes, ..... | Miner, ..... | 35 | 1 | 3 | Tripp Slope, ..... | Lackawanna, ..... | Fatally injured by premature blast; died 45 minutes later. |
| | 8, | John Beecham, ..... | Laborer, ..... | 20 | .... | .... | Pyne, ..... | Lackawanna, ..... | Killed by cars inside. |
| | 19, | Joseph Huddy, ..... | Miner, ..... | 45 | 1 | 5 | Holden, ..... | Lackawanna, ..... | Fatally injured by flying coal from blast; died June 22. |
| | 21, | Andrew Greiger, ..... | Outside laborer, .. | 20 | .... | .... | Green Ridge Slope, .... | Lackawanna, ..... | Fatally injured by cars outside. Died at 9 P. M. in the Lackawanna Hospital from loss of blood. |
| July | 13, | Frank Pedie, ..... | Laborer, ..... | 22 | .... | .... | Hampsher, ..... | Lackawanna, ..... | Killed by a fall of top coal. |

Scale 1"=100

PART OF

MIDDLE VEIN SKEW NB FIRE

JERMYN No 1 COAL MAP

Rendham Pa

Andrew Kennedy, M E

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 15, | Michael Nealon, ..... | Miner, ..... .... | 40 | 1 | 3 | Old Forge No. 2, ..... | Lackawanna, ..... | Killed by fall of rock. |
| | Aug. 23, | William Seibert, ..... | Laborer, ..... | 29 | .... | .... | Gr'wood No. 1, old shaft. | Lackawanna, ..... | Fatally injured by a fall of roof; taken to the Lackawanna Hospital in the company's ambulance, where he died a few minutes later. |
| | 31, | John McHale, ..... | Miner, ..... | 30 | 1 | 2 | Cayuga, ..... | Lackawanna, ..... | Fatally injured by a fall of rock; died in a few hours. |
| | Sept. 1, | Alfonso Baldo, ..... | Miner, ..... | 35 | 1 | .... | William A., ..... | Lackawanna, ..... | Fatally injured by fall of roof; died in the Lackawanna Hospital a few hours later. |
| | 18, | Martin Millar, ..... | Laborer, ..... | 38 | .... | .... | Von Storch Slope, ..... | Lackawanna, ..... | While loading a car a bell shaped rock fell, slightly injuring his back. He was taken to the Lackawanna Hospital, other complications set in from which he died on December 14. |
| | 24, | Salvatore Vennango, .... | Laborer, ..... | 24 | 1 | 2 | Spencer, ..... | Lackawanna, ..... | Instantly killed by fall of roof. |
| | 28, | Isaac Watkins, ..... | Fire boss, ..... | 55 | 1 | 1 | Jermyn No. 1, ..... | Lackawanna, .... | Fire boss Isaac Watkins, while making his morning examination of the workings of the middle vein, Jermyn No. 1 mine, discovered a fire in a chamber known as Apple's, off Davies' old airway on the morning of September 21. Mining was suspended in that section of the colliery and every energy directed towards extinguishing the fire. The fire originated from an ignited blower having been left burning at quitting time the previous day, and this in a short time communicated fire to the gob. A line of water pipes was immediately laid and properly connected to a pump, and work was commenced with the air current flowing in its usual direction, shown by black arrows on tracing. As the work progressed from cross-cut A towards cross-cut B it was discovered that the location of the fire was nearer to cross-cut B than to cross-cut A. The fire had caused the roof to fall in considerable quantities, and as this had to be loaded out and the place securely timbered, it was decided by the mine officials, after a consultation, to change the direction of the current and reach the location of the fire with the view of quenching it, and so reduce the heat and smoke, so that the work of loading the debris would be facilitated. The current was consequently changed on 28th September, about two o'clock, Mine Foreman Johns being in charge of the work. The direction of the currents after the change is shown by red arrows on tracing. Sometime later Mine Foreman Johns and Fire Boss Watkins having found that |
| | 28, | John Gallagher, ..... | Company man, ... | 37 | 1 | 7 | Jermyn No. 1, ..... | Lackawanna, .... | |
| | 28, | Wm. Frankland, ..... | Miner, ..... | 30 | .... | .... | Jermyn No. 1, ..... | Lackawanna, .... | |
| | 28, | Wm. Tompkins, ..... | Company man, ... | 24 | .... | .... | Jermyn No. 1, ..... | Lackawanna, .... | |
| | 28, | Joseph Smith, ..... | Company man, ... | 38 | 1 | 7 | Jermyn No. 1, ..... | Lackawanna, .... | |

TABLE NO. 4.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Widows. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | the current was working successfully in the new direction, decided to go in with the new intake to the location of the fire. This they did and found the vicinity of the fire clear of gases, and concluded that it would be safe for the shift to go in and commence work from that end. Isaac Watkins, the fire boss, had charge of this shift, consisting of John Gallagher, Wm. Frankland, Wm. Tompkins and Joseph Smith. About 3.30 P. M. they went in, after making arrangements with the other men to bring T iron rails later. At 5.10 P. M. Geo. Shrives, Al. Whyte, Thos. Curley and John Conway were back at the door marked D on the plan, with the rails on a truck. This door they found closed when they arrived. They discovered the body of Tompkins at the point shown on the plan, and the bodies of Frankland, Smith and Gallagher some distance inside, as shown on the plan also. Later in the day Fire Boss Watkins' body was recovered from a point near the location of the fire. During the investigation and inquest which followed, it was shown that the air current from D around the location of the fire was intact beyond a doubt, with no possible way by which it could reach the return, except by way of the fire. All doors, brattices and walls were undisturbed and the fan running at its usual speed. The coroner of the county, assisted by the mine inspector held an inquest over the remains of Isaac Watkins and the others October 4, 1897, at Rendham, at which all the available evidence was submitted. The jury |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Oct. | 4, | Casper Ott, | Headman, | 39 | 1 | 1 | Pyne Breaker, | Lackawanna, | returned the following verdict: "We, the undersigned jurors, find after hearing the evidence submitted, that the said Isaac Watkins and others, for some causes unknown, retreated to the bad air current and met death as the result of breathing sulphurous gases. We further find that no blame can be attached to Isaac Watkins nor the other officials. R. Willis Reese, E. D. Owen, T. P. Cosgrove, F. Cosgrove, J. Nicholls and Wm. Monroe. |
| | 9, | John Kipacash, | Laborer, | 45 | 1 | .... | Taylor Shaft, | Lackawanna, | Instantly killed by falling down main shaft. |
| | 7, | William Fitzhenry, | Laborer, | 23 | .... | .... | Taylor Shaft, | Lackawanna, | Fatally injured by a fall of rock; died some days later. |
| | 18, | Patrick Lynn, | Miner, | 47 | 1 | 9 | Brisbin, | Lackawanna, | Fatally injured while riding on cars inside after being requested not to do so; died shortly after. |
| | 30, | Thomas Hill, | Collerman, | 43 | 1 | 4 | Von Storch Slope, | Lackawanna, | Fatally injured by flying coal from blast; died some hours later. |
| | 30, | John Farrell, | Water bailer, | 60 | .... | .... | Von Storch Slope, | Lackawanna, | A fire was discovered in the Von Storch Slope about midnight, October 29. This slope crosses the measures and intersects the Diamond, Rock and Fourteen "Foot" veins. At the Diamond vein the empty cars are run off on what is known as the light bridge. Some distance below this on the slope there are two pump rooms. One is known as the Diamond pump and the other the Fourteen Foot vein pump. On the night in question Edward Simpson, 26 years of age, was engaged in looking after these pumps. At 12.40 he smelled smoke. After accertaining the pump rooms to be safe, he started up the slope to locate the fire. He found the light bridge enveloped in smoke; he could also hear the roof rock falling. He made an attempt to reach the section of the mine known as the New Diamond workings by way of the rock vein heading, but was prevented from doing so by smoke. He knew the water boilers were in that part of the mine. He then went out of the mine through the second opening shaft, to give the alarm and to notify the company's officials. The fire companies were soon on the ground, but were unable to do effective work for some time, as the dense smoke prevented them from reaching the location of the fire. The mine officials made brave attempts to reach the men by all available avenues from the second shaft, but were cut off by |
| | 30, | John McDonnell, | Water bailer, | 27 | .... | .... | Von Storch Slope, | Lackawanna, | |
| | 30, | Thomas Padden, | Water bailer, | 24 | .... | .... | Von Storch Slope, | Lackawanna, | |
| | 30, | John Walsh, | Water bailer, | 22 | .... | .... | Von Storch Slope, | Lackawanna, | |
| | 29, | John Moran, | Driver, | 21 | .... | .... | Von Storch Slope, | Lackawanna, | |

TABLE NO. 4.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Widows. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | smoke. Finding it was impossible to reach the men they manipulated doors so as to carry the bulk of the smoke away from the imprisoned men, and after doing so directed their attention to the slope which, on account of the heat from the fire, together with the contraction of the air passage owing to falls, was upcasting and thus keeping the fire companies from working. At about 7 o'clock on the morning of October 30, the smoke abated and in a few hours the fire was well under control. At 9 P. M. a rescuing party reached the New Diamond workings and there found Joseph Yankoskie alive. He informed them that all the other men were dead. Yankoskie, together with notes left by other members of the party, testify that they were all alive at 11.30 A. M., October 30. They had become discouraged and determined to make one final attempt to reach the Four "Foot" vein along a rock plane connecting the two veins. At about 11.30 they all started through the thick smoke up the plane. Yankoskie, who was leading the way up the plane, heard his companions saying "good-bye," decided to beat a hasty retreat. In the course of some time he reached the dip chambers, and there, with two mules, he remained until rescued. The bodies of Hill, Farrell, McDonnell, Padden, Walsh and Moran were found by the rescuers as told by Yankoskie, at or near the foot of the plane. Had the men, or even one of the number been acquainted with the current in that section of the mine, or had they |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | known the use of the several doors, they could have done more to save themselves by the manipulation of the same than it was possible for the mine officials and others to do in that direction at the time and under the circumstances. Had any one of them possessed that knowledge he failed to turn it to good account at the critical time. It is further demonstrated had they remained in the dip chambers they would have survived. At the inquest which was held in the Lackawanna county court house, Scranton, November 5th and 6th, voluminous evidence was submitted by men and boys who had passed up the slope at various times on the night of October 29 up to 12.30, all stating under oath that no smoke was noticeable at the location of the light bridge when they passed that spot. Evidence was also submitted to show that no stove was in use at that point, neither did any steam pipes come in contact or in close proximity to the bridge. The following verdict was rendered: We, the undersigned, find that Thomas Hill and others came to their death by suffocation due to a fire in the Von Storch Slope, the origin of which is to us unknown, but after listening to testimony introduced we believe it to be of incendiary origin. We further believe that the Delaware and Hudson Company did everything in its power to save the men and subdue the flames after they were discovered. John D. Keator, Robert M. Courtwright, Ed. Barrett, Wm. J. Jones, Joseph F. Bausch, Patrick Cusick. |
| Nov. | 4, | Andrew Nelson, | Miner, | 27 | .... | .... | Hyde Park, | Lackawanna, | Fatally injured by fall of roof. |
| | 4, | Peter Solekira, | Miner, | 35 | .... | .... | William A., | Lackawanna, | Fatally injured by fall of top coal; died in Pittston at 10 A. M., November 5. |
| | 10, | John McTiernan, | Miner, | 50 | 1 | 20 | Hampton, | Lackawanna, | Fatally injured by fall of roof; he was taken to Moses Taylor Hospital where he died November 28. |
| | 12, | Joseph Theobald, | Door boy, | 15 | .... | .... | Hyde Park, | Lackawanna, | Killed by cars inside. |
| | 13, | Mike Kinka, | Laborer, | 27 | .... | .... | Dodge, | Lackawanna, | Instantly killed by fall of roof. |
| Dec. | 2, | Patrick Schofield, | Miner, | 36 | 1 | 4 | Dickson, | Lackawanna, | Killed by flying coal from blast. |
| | 2, | Thomas Lydon, | Miner, | 45 | 1 | 7 | Lawrence Shaft, | Lackawanna, | Fatally injured by fall of roof from which he died the following day. |
| | 8, | Jesse Goodman, | Laborer, | 25 | .... | .... | Austin Tunnel, | Lackawanna, | Killed by fall of rock. |
| | 11, | John Coyne, | Miner, | 45 | 1 | 1 | Greenwood No. 12 Drift, | Lackawanna, | Killed by fall of roof. |
| | 14, | John Malia, | Miner, | 34 | .... | 5 | Capouse, | Lackawanna, | Killed by fall of roof. |
| | 27, | Alex. Ajinskie, | Laborer, | 21 | .... | .... | Bellevue Shaft, | Lackawanna, | Fatally burned by explosion of gas; died from the effects January, 1898, in Moses Taylor Hospital. |

TABLE No. 5.—List of Non-Fatal Accidents that Occurred in and about the Mines of the Second Anthracite District, for the Year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|
| Jan. 6, | Paul Grizler, | Laborer, | 24 | Cayuga, | Lackawanna, | Slightly injured on abdomen by being kicked by a mule. |
| 7, | John Owens, | Miner, | 63 | Von Storch, | Lackawanna, | Slightly injured on the back by a fall of rock. |
| 8, | John McCabe, | Miner, | | Pine Brook, | Lackawanna, | Slightly injured on the back by a fall of "black head." |
| 11, | William Granny, | Miner, | 42 | Mount Pleasant, | Lackawanna, | Rib fractured; caused by falling from the mining bench against the bumper of a car. |
| 12, | Dennis McGuire, | Driver, | 16 | Dickson Shaft, | Lackawanna, | Slightly injured by cars while unhitching a mule. |
| 16, | Anthony Ford, | Miner, | 35 | Bellevue Slope, | Lackawanna, | Slightly injured by a fall of roof. |
| 19, | Joseph Kramer, | Outside laborer, | 22 | Spencers Shaft, | Lackawanna, | Fell on ice in front of a loaded car and was slightly injured. |
| 19, | John Kilpatrick, | Door boy, | 15 | Manville, | Lackawanna, | Injured by cars while standing on the wrong road. |
| 19, | John Lloyd, | Driver, | 19 | Cayuga, | Lackawanna, | Kicked by a mule and slightly injured about the face. |
| 22, | John Ruddy, | Slate picker, | 14 | Cayuga, | Lackawanna, | Slightly injured by being caught in slate picker shaft. |
| 25, | Patrick Molloney, | Miner, | 32 | Dickson, | Lackawanna, | Blast exploded, flying rock injuring both men, the miner seriously, the laborer slightly. |
| 25, | Dennis Donovan, | Laborer, | 32 | Dickson, | Lackawanna, | |
| 29, | John W. Watkins, | Miner, | 38 | Greenwood No. 2, | Lackawanna, | Injured by flying coal from a premature blast. |
| 30, | Mike Reddy, | Laborer, | 21 | Green Ridge Slope, | Lackawanna, | A slab of rock fell, fracturing the laborer's leg. |
| Feb. 3, | Wm. Chester, | Miner, | 40 | Cayuga, | Lackawanna, | Injured by a fall of roof. |
| 3, | James Eustice, | Outside driver, | 15 | Old Forge Breaker, | Lackawanna, | He fell in front of a trip of loaded cars and sustained a fractured arm. |
| 9, | Samuel Price, | Miner, | 46 | Green Ridge Slope, | Lackawanna, | Leg fractured by empty cars jumping the track. |
| 18, | Jas. McNeil, | Driver, | 18 | Von Storch, | Lackawanna, | Slightly injured by being kicked by a mule. |
| 18, | Thos. James, | Driver's helper, | 16 | Bellevue Slope, | Lackawanna, | Mule crushed the boy against the car, fracturing his arm. |
| 19, | Michael Egan, | Driver, | 16 | Taylor Shaft, | Lackawanna, | Burned by explosion of gas. |
| 19, | Michael Kipacash, | Laborer, | 30 | Taylor shaft, | Lackawanna, | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 23, | John Taylor, | Miner, | 45 | Spencer, | Lackawanna, | A piece of rock fell on him, fracturing two ribs. |
| | 26, | Peter McGovern, | Laborer, | 34 | Bellevue Slope, | Lackawanna, | Small piece of "falling roof" fell on him, fracturing his leg below the knee. |
| Mar. | 1, | Henry Goudoud, | Miner, | 22 | West Ridge, | Lackawanna, | This man was working under a piece of roof rock when it fell on him, slightly injuring him. |
| | 4, | Henry Harmon, | Door boy, | 15 | Von Storch, | Lackawanna, | Harmon was riding on a mule when his leg became entangled in the harness of another mule, causing a slight fracture of the shin bone. |
| | 5, | Obed Jenkins, | Miner, | 40 | Tripp Slope, | Lackawanna, | Piece of rock fell on him, causing severe injuries. |
| | 8, | Fred Linderliff, | Miner, | 41 | West Ridge, | Lackawanna, | Gas was ignited by his naked light, burning him about the face and arms. |
| | 9, | Frank Farrell, | | 40 | Dickson, | Lackawanna, | Severely burned by an explosion of gas. |
| | 9, | Wm. Atkinson, | | 45 | Dickson, | Lackawanna, | |
| | 9, | Mich. Molloy, | | 30 | Dickson, | Lackawanna, | |
| | 9, | Wm. Bone, | | 35 | Dickson, | Lackawanna, | |
| | 9, | William Shippen, | Miner, | 40 | Nay Aug, | Lackawanna, | Slab of fire clay extending back 15 feet from the face fell, slightly injuring him. |
| | 18, | Edward Moleski, | Driver's helper, | 15 | Greenwood No. 1, | Lackawanna, | Mule trod on his foot, causing him to fall, the car passing over his arm, necessitating the amputation of the limb. |
| | 22, | Hey McMahon, | Driver, | 16 | Dickson, | Lackawanna, | Leg fractured; a loaded car passed over his leg. |
| | 22, | Evan L. Evans, | Miner, | 43 | Sloan, | Lackawanna, | Kicked by a mule; his arm was injured and head cut. |
| | 22, | Morgan Lewis, | Laborer, | 32 | Dodge, | Lackawanna, | Four inches of gas had accumulated in a cavity in the roof and became ignited, slightly burning Lewis. |
| | 24, | Ephraim Davies, | Miner, | 35 | Von Storch | Lackawanna, | Was restanding a prop when a piece of rock fell, slightly injuring his leg. |
| | 24, | Martin Toole, | Driver, | 17 | West Ridge, | Lackawanna, | Shoulder dislocated by having been caught between the stretcher and the car. |
| April | 3, | Patrick Mulheim, | Laborer, | 48 | Capouse, | Lackawanna, | Car ran over him, fracturing his leg. |
| | 7, | Chas. Robert, | Laborer, | 34 | Old Forge No. 1, | Lackawanna, | Rock fell on him, slightly injuring him. |
| | 9, | Michael Walsh, | Driver, | 16 | Greenwood No. 2, | Lackawanna, | Mule fell on him. |
| | 10, | Mathew Polke, | Miner, | 30 | West Ridge, | Lackawanna, | Flying coal slightly injured him. |
| | 14, | John Jones, | Sinker, | 47 | Bellevue Sinking, | Lackawanna, | Falling rock struck him, fracturing his leg. |
| | 17, | Patrick Toolan, | Miner, | 29 | Manville, | Lackawanna, | Slightly injured by flying coal. |
| | 23, | Andrew Daniels, | Dumper, | 23 | Old Forge Breaker, | Lackawanna, | While assisting to replace a derailed car the rail slipped and cut a finger off. |
| | 23, | John R. Willis, | Driver, | 16 | Penn No. 5, | Lackawanna, | His leg was squeezed between the bumpers of cars and slightly injured. |
| | 30, | John Roughabach, | Driver, | 17 | Taylor Shaft, | Lackawanna, | Fell under a car, sustaining a fractured ankle. |
| May | 3, | Dd. D. John, | Laborer, | 32 | Capouse, | Lackawanna, | Slab of dividing rock fell on him, causing a contusion of the back and sprained ankle. |
| | 3, | Thomas D. Powell, | Miner, | 35 | Tripp Slope, | Lackawanna, | Injured on the back and arm by coal from premature blast. |
| | 5, | John Widowskie, | Laborer, | 28 | Bellevue Slope, | Lackawanna, | A piece of rock fell, fracturing his leg below the knee. |

TABLE No. 5.—Continued.

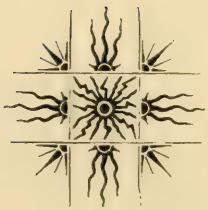
| Date of accident. | Name of Person. | Occupation. | Age. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|
| May 7. | Robert Tool, | Headman, inside.. | 19 | West Ridge, | Lackawanna, | Was riding on the front end of a loaded trip, when he fell, two cars passing over him, fracturing his leg and collar bone and otherwise bruising him. |
| 10. | Thomas Cawley, | Miner, | 49 | Capouse, | Lackawanna, | Slightly burned about face and hands, the result of handling powder in a careless manner. |
| 15. | Reese Evans, | Miner, | 34 | Greenwood No. 1, | Lackawanna, | Slightly burned by handling powder in a careless manner. |
| 15. | Alex. Shunka, | Laborer, | 27 | Greenwood No. 1, | Lackawanna, | |
| 18. | John Caffery, | Driver, | 17 | Pine Brook, | Lackawanna, | Leg fractured above the ankle by a derailed car. |
| 18. | Martin Holleran, | Miner, | 34 | Greenwood No. 1, | Lackawanna, | Back injured by fall of roof. |
| 21. | Fred White, | Miner, | 26 | Cayuga, | Lackawanna, | A piece of the top bench fell, injuring his arm and hip. |
| 21. | James Sheridan, | Driver, | 17 | Oxford, | Lackawanna, | Injured; kicked by a mule. |
| 31. | Thomas R. James, | Timberman, | 55 | Dodge, | Lackawanna, | They ignited some gas which had accumulated and were severely burned. |
| 31. | Henry Hogan, | Laborer, | 25 | Dodge, | Lackawanna, | |
| June 2. | John Humlo, | Miner, | 54 | Austin, | Lackawanna, | Bruised about the hip and legs by a fall of rock. |
| 7. | Martin Salmon, | Miner, | 56 | Sloan and Central, | Lackawanna, | Head injured and two ribs fractured by flying coal from premature blast. |
| 10. | Joseph Walters, | Miner, | 54 | Mount Pleasant, | Lackawanna, | A piece of the top coal fell on him, fracturing his leg below the knee and injuring him about the back and ribs. |
| 11. | Edward David, | Driver's helper, .. | 16 | Taylor Shaft, | Lackawanna, | The boy's leg was caught between the bumper of the second and the body of the first car, fracturing it below the knee. |
| 14. | Geo. Richards, | Miner, | 37 | Tripp Slope, | Lackawanna, | A piece of fire clay fell on him, fracturing his leg and cutting his head. |
| 15. | Thomas Laird, | Miner, | 43 | Dickson, | Lackawanna, | Slightly injured on the head, hands and face by flying coals from blast. |
| 15. | Thomas Nee, | Door boy, | 15 | Greenwood No. 1, | Lackawanna, | Car struck him, bruising the calf of his leg. |
| 16. | Powell Shediskie, | Laborer, | 18 | Dickson, | Lackawanna, | Slightly injured by flying coal from blast. |
| 16. | Michael Molloy, | Company man, ... | 55 | Manville, | Lackawanna, | Slightly injured about the hip; crushed between a door and car. |
| July 1. | Rees Samuel, | Miner, | 34 | Dodge, | Lackawanna, | Slightly injured by fall of roof. |
| 1. | Edward Kennedy, | Laborer, | 20 | Old Forge No. 1, | Lackawanna, | Slightly burned by explosion of gas. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5, | Steve Poleski, | Door boy, | 15 | Spencer, | Lackawanna, | Leg fractured by falling under an empty car. |
| | 7, | Pete Theobold, | Miner, | 32 | Hyde Park, | Lackawanna, | Leg fractured by fall of rock. |
| | 12, | George Riga, | Laborer, | 25 | Jermyn No. 1, | Lackawanna, | Slightly injured by falling slab. |
| | 12, | Mike Kilminskie, | Miner, | 37 | Jermyn No. 1, | Lackawanna, | |
| | 14, | John Coleman, | Miner, | 38 | Sloan, | Lackawanna, | Injured by fall of top coal. |
| | 15, | William H. Tague, | Driver, | 17 | Manville, | Lackawanna, | Leg bruised by being struck by a mine rail. |
| | 29, | John Lyewskie, | Laborer, | 31 | Sibley, | Lackawanna, | Back and leg injured by fall of roof in face of chamber. |
| | 31, | Lewis Jenkins, | Driver, | 17 | Hampton, | Lackawanna, | Fell, the car wheel passing over his hand, crushing his fingers. |
| | 31, | Michael Gorgot, | Laborer, | 50 | Greenwood No. 8, | Lackawanna, | Injured on back and hip by fall of bony in face of chamber. |
| Aug. | 2, | Stephen Griffiths, | Laborer, | 40 | Pine Brook, | Lackawanna, | Slightly injured on face and side while handling powder in a careless manner. |
| | 2, | Bayard Griffiths, | Driver, | 18 | Taylor Shaft, | Lackawanna, | Leg fractured by empty cars inside. |
| | 3, | Floyd Kline, | Driver, | 17 | Pine Brook, | Lackawanna, | Leg fractured by cars while unhitching mule. |
| | 6, | Fred Rooney, | Driver, | 15 | Jermyn No. 1, | Lackawanna, | While crossing the road his foot caught at a latch; a car struck it, severely squeezing it. |
| | 10, | Chas. Lawson, | Driver, | 17 | Tripp Slope, | Lackawanna, | Slightly injured by a car. He was riding on the front bumper when the car jumped the track. |
| | 13, | Anthony Koneski, | Laborer, | 27 | Sloan, | Lackawanna, | Slightly injured on the head by a piece of top coal falling on him. |
| | 13, | Enoch Petes, | Laborer, | 34 | Cayuga, | Lackawanna, | Leg fractured by fall of rock. |
| | 14, | Jacob Sadwiskie, | Laborer, | 27 | Von Storch Shaft, | Lackawanna, | Leg fractured by fall of rock. |
| | 17, | Isaac Smith, | Miner, | 46 | Archbald, | Lackawanna, | Ribs fractured by fall of "bell". |
| | 21, | Wm. Horan, | Driver, | 16 | Von Storch Slope, | Lackawanna, | Jaw broken, caused by having been squeezed between car and mule. |
| | 21, | Joseph Fletcher, | Driver's helper. | 16 | Bellevue Shaft, | Lackawanna, | One finger cut off while hitching a mule to a car. |
| | 23, | William Price, | Door boy, | 14 | Mount Pleasant, | Lackawanna, | Squeezed about the hip by a car. |
| | 24, | Rees Evans, | Door boy, | 15 | West Ridge, | Lackawanna, | Slightly injured by T iron rail. |
| | 27, | William B. Jones, | Driver, | 19 | Sloan, | Lackawanna, | Severely injured by being kicked by a mule. |
| | 27, | Wm. J. Morgan, | Miner, | 34 | Tripp Shaft, | Lackawanna, | Piece of coal fell, slightly injuring him. |
| | 28, | P. J. Glancey, | Miner, | 34 | Continental, | Lackawanna, | Cut on arm and forehead by a falling slab. |
| | 28, | Anthony Spindis, | Miner, | 30 | Von Storch Slope, | Lackawanna, | A piece of overhanging rock fell on him. |
| Sept. | 1, | Mike Kelina, | Laborer, | 28 | William A., | Lackawanna, | Seriously injured by fall of rock in the face of chamber. |
| | 1, | Patrick Lynnett, | Driver, | 18 | Sloan and Central, | Lackawanna, | Leg fractured by cars inside. |
| | 2, | John Stephens, | Miner, | 44 | Dodge, | Lackawanna, | A passing car struck him, bruising him about the hip. |
| | 4, | James Henry, | Miner, | 27 | Dickson, | Lackawanna, | Compound fracture of the leg caused by a fall of roof. |
| | 7, | George Coburn, | Miner, | 48 | Sloan and Central, | Lackawanna, | Injured on hand while assisting to replace a derailed car. |
| | 10, | Orlando Solomon, | Miner, | 35 | Old Forge No. 2, | Lackawanna, | Two ribs and a small bone of the arm fractured by a fall of roof. |
| | 14, | Malus Basilees, | Laborer, | 33 | Continental, | Lackawanna, | Slightly injured by falling roof while watching the miner barring rock down. |

TABLE No. 5. —Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|
| Sept. 15, | Michael Foley, | Slate picker, | | Manville Breaker, | Lackawanna, | Leg fractured by having been struck by wire rope. |
| 24, | John Bacon, | Laborer, | 37 | Continental, | Lackawanna, | Slightly injured on the leg by a piece of top coal which rolled against his leg. |
| 30, | Charles Wilbur, | Miner, | 45 | West Ridge, | Lackawanna, | Slightly burned on the left arm and side, the result of handling powder in a careless manner. |
| Oct. 4, | Frank Chesick, | Laborer, | 37 | Tripp Slope, | Lackawanna, | Injured by fall of roof. |
| 4, | Peter Toole, | Laborer, | | Greenwood No. 1, | Lackawanna, | Injured by fall of roof in face of chamber. |
| 9, | Gitou Tigroli, | Miner, | 45 | William A., | Lackawanna, | Slightly injured by fall of roof in face of chamber. |
| 9, | James Walsh, | Miner, | 45 | Austin, | Lackawanna, | Index finger cut off by fall of bony coal. |
| 12, | Mathew Clemento, | Miner, | 24 | Old Forge No. 2, | Lackawanna, | Slightly injured by fall of roof. |
| 14, | John Bochalamis, | Laborer, | 25 | Continental, | Lackawanna, | Injured by fall of roof. |
| 11, | Vincent Tonnetti, | Miner, | 55 | Meadow Brook, | Lackawanna, | Slightly injured by fall of roof. |
| 18, | C. E. Lewis, | Miner, | 30 | Diamond Drift, | Lackawanna, | While these men were charging a hole it exploded, severely injuring the former and slightly injuring the latter. |
| 18, | Wm. Steveniskie, | Laborer, | 30 | Diamond Drift, | Lackawanna, | |
| 21, | Wm. Donovan, | Driver, | 16 | Cayuga, | Lackawanna, | Compound fracture of the leg by a mine car passing over it. |
| 23, | Patrick Molloy, | Driver, | 16 | Von Storch, | Lackawanna, | Slightly injured by having been struck by an empty mine car. |
| 22, | Evan Evans, | Driver, | 20 | Dodge, | Lackawanna, | Slightly injured while endeavoring to pass a moving trip of cars without a light. |
| 23, | George Hance, | Laborer, | 30 | Jermyn No. 2, | Lackawanna, | Leg fractured by falling coal. |
| 26, | Thomas Judge, | Trackman, | 24 | Cayuga, | Lackawanna, | Leg fractured by fall of roof. |
| 29, | David Hughes, | Miner, | 32 | Pine Brook, | Lackawanna, | Flying coal from blast injured him on the back. |
| 30, | Henry Haminer, | Miner, | 55 | Sloan and Central, | Lackawanna, | Slightly injured by fall of top coal. |
| Nov. 2, | Casper Connelton, | Laborer, | 23 | Spencer, | Lackawanna, | Slightly injured by having been squeezed between a car and a prop. |
| 2, | James Graham, | Laborer, | 45 | Continental, | Lackawanna, | Injured by fall of roof. |
| 4, | James Shea, | Laborer, | 38 | Holden, | Lackawanna, | Slightly injured by having been squeezed between a car and rib. |
| 5, | John Seiss, | Laborer, | 51 | Sloan and Central, | Lackawanna, | Arm fractured by fall of bony. |
| 5, | John Moran, | Outside laborer, | 65 | Archbald, | Lackawanna, | Injured by falling from a platform. |
| 10, | Orey Griffith, | Driver's helper, | 16 | Bellevue Slope, | Lackawanna, | Leg injured by falling under mine car. |
| 10, | Errick Brunnuskie, | Miner, | 31 | Meadow Brook Tunnel, | Lackawanna, | Slightly injured by flying coal from blast. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 10, | Gussipi Tetruchie, | Laborer, | 31 | Meadow Brook Tunnel, | Lackawanna, | Slightly injured by flying coal from a blast. |
| | 10, | John Carroll, | Miner, | 39 | Hyde Park, | Lackawanna, | One finger cut off while assisting to replace a derailed car. |
| | 11, | Joseph Boskie, | Driver, | 16 | West Ridge, | Lackawanna, | Squeezed between car and mule; injured on chest and shoulders. |
| | 11, | David B. Harris, | Miner, | 38 | Sloan and Central, | Lackawanna, | Arm fractured and wounds on scalp by falling rock. |
| | 12, | Henry Doyle, | Laborer, | 41 | No. 1 Old Forge, | Lackawanna, | Leg fractured by falling rock. |
| | 12, | Lewis Babrycavish, | Laborer, | 30 | William A., | Lackawanna, | Slightly injured by flying coal from blast. |
| | 17, | Mike Stacknack, | Driver, | 20 | Austin, | Lackawanna, | Slightly injured by having been squeezed between car and roof. |
| | 17, | Edward Price, | Door boy, | 15 | Tripp Slope, | Lackawanna, | Cut on head and slightly injured by being thrown from mule. |
| | 17, | Michael Judge, | Driver, | 20 | Tripp Shaft, | Lackawanna, | Mules slipped on rails and fell on him, bruising his leg. |
| | 23, | Dennis Mahaney, | Driver, | 17 | Pine Brook, | Lackawanna, | Squeezed between car and door. His leg was fractured below the knee. |
| Dec. | 2, | Richard Evans, | Driver's helper, | 16 | Pine Brook, | Lackawanna, | Was riding on bumper of car; he fell and was injured by being squeezed between the car and the side of the track. |
| | 3, | John Pekanish, | Laborer, | 29 | Holden, | Lackawanna, | Injured on hand and arm by flying coal from blast. |
| | 3, | Thomas Mulheim, | Miner, | 31 | Capouse, | Lackawanna, | Slightly injured by fall of roof. |
| | 16, | John Connelly, | Runner, | 19 | Greenwood, old No. 1 shaft, | Lackawanna, | Two fingers injured by car wheel passing over them. |
| | 24, | Louis Webble, | Driver, | 21 | Pyne, | Lackawanna, | Slightly injured by having been kicked by a mule. |
| | 27, | John O'Brian, | Miner, | 31 | Bellevue Shaft, | Lackawanna, | Leg fractured by flying timber in an explosion of fire damp. |
| | 28, | M. Vassholomie, | Laborer, | 25 | Continental, | Lackawanna, | Leg fractured by fall of roof. |
| | 28, | P. Travis, | Driver, | 17 | Spencer's Shaft, | Lackawanna, | Arm fractured by falling under mine cars. |
| | 30, | Thomas Malia, | Driver, | 16 | Von Storch Slope, | Lackawanna, | Slightly injured by cars inside. |



# THIRD ANTHRACITE DISTRICT.

(LACKAWANNA, LUZERNE AND SULLIVAN COUNTIES.)

---

Pittston, Pa., February 14, 1898.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor herewith of presenting my annual report as Inspector of mines for the Third anthracite district for the year 1897. It contains the usual tables, also a brief report of the flooding of a portion of the Mount Lookout colliery with sand and water. The number of fatal accidents was 63; non-fatal accidents, 180. Thirty-five were of such a slight character that they are not reported. The average time worked was 149 days.

Very respectfully,

H. McDONALD,

Inspector.

---

Tons of Coal Mined by the Various Companies During the Year 1897.

| | |
|---|---|
| Pennsylvania Coal Company, | 1,340,020 |
| Lehigh Valley Coal Company, | 950,069 |
| Butler Mine Company, Limited, | 217,217 |
| Newton Coal Mining Company, | 134,048 |
| Old Forge Coal Mining Company, | 273,476 |
| Delaware, Lackawanna and Western Railroad Company, | 248,357 |
| Forty Fort Coal Company, | 265,691 |
| Delaware and Hudson Canal Company, | 178,376 |
| Thomas Waddell Estate, | 62,708 |
| John C. Haddock, | 202,228 |
| Clear Spring Coal Company, | 171,679 |
| Hillside Coal and Iron Company, | 33,085 |
| Florence Coal Company, Limited, | 85,169 |
| W. G. Payne & Co., | 164,630 |
| Keystone Coal Company, | 109,201 |
| Avoca Coal Company, | 59,215 |
| Langcliffe Coal Company, Limited, | 93,378 |
| Stevens Coal Company, | 155,013 |
| Laflin Coal Company, | 72,230 |

| | |
|---|---|
| Robertson & Law, | 59,712 |
| Babylon Coal Company, | 130,555 |
| Mount Lookout Coal Company, | 307,727 |
| Raub Coal Company, Limited, | 47,828 |
| Algonquin Coal Company, | 136,688 |
| Laurel Run Coal Company, | 90,440 |
| Westminster Coal Company, | 3,707 |
| W. B. Miner, | 11,697 |
| Crescent Coal Company, | 38,886 |
| Wyoming Coal and Land Company, | 35,726 |
| State Line and Sullivan Railroad Company, | 164,046 |
| Brookside Coal Company, | 31,421 |
| Anthony Brothers, | 1,600 |
| Total, | 5,875,823 |

Number of Fatal and Non-Fatal Accidents and Tons of Coal Produced per Life Lost and per Person Seriously Injured.

| Name of Operators. | Number of lives lost. | Tons of coal produced per life lost. | Number of persons seriously injured. | Tons of coal produced per person seriously injured. |
|---|---|---|---|---|
| Pennsylvania Coal Company, | 6 | 233,336 | 27 | 49,630 |
| Lehigh Valley Coal Company, | 10 | 95,006 | 14 | 39,586 |
| Butler Mine Company, Limited, | 4 | 54,304 | 5 | 43,443 |
| Newton Coal Mining Company, | | | 8 | 17,881 |
| Old Forge Coal Mining Company, | 5 | 54,693 | 6 | 45,577 |
| Delaware, Lackawanna and Western Railroad Company, | 2 | 124,178 | 11 | 22,577 |
| Forty Fort Coal Company, | 5 | 53,138 | 6 | 44,282 |
| Delaware and Hudson Canal Company, | 4 | 44,594 | 2 | 89,188 |
| Thomas Waddell Estate, | | | 2 | 31,354 |
| John C. Haddock, | 1 | 202,228 | 5 | 40,445 |
| Clear Spring Coal Company, | 4 | 42,919 | 6 | 28,613 |
| Hillside Coal and Iron Company, | | | | |
| Florence Coal Company, Limited, | 1 | 85,169 | | |
| W. G. Payne & Company, | 2 | 82,314 | 10 | 16,463 |
| Keystone Coal Company, | 3 | 36,400 | | |
| Avoca Coal Company, | 2 | 29,607 | | |
| Langcliffe Coal Company, Limited, | 2 | 46,688 | 3 | 31,125 |
| Stevens Coal Company, | | | 6 | 25,835 |
| Laflin Coal Company, | 2 | 36,115 | 1 | 72,230 |
| Robertson & Law, | | | 2 | 29,856 |
| Babylon Coal Company, | 4 | 32,638 | 7 | 18,651 |
| Mount Lookout Coal Company, | 2 | 153,863 | 8 | 38,466 |
| Raub Coal Company, Limited, | 1 | 47,828 | | |
| Algonquin Coal Company, | 1 | 136,688 | 1 | 136,688 |
| Laurel Run Coal Company, | 2 | 45,220 | 1 | 90,440 |
| Westminster Coal Company, | | | | |
| W. B. Miner, | | | 1 | 11,697 |
| Crescent Coal Company, | | | 3 | 12,962 |
| Wyoming Coal and Land Company, | | | | |
| State Line and Sullivan Railroad Company, | | | | |
| Brookside Coal Company, | | | | |
| Anthony Brothers, | | | | |
| Total, | 66 | 93,267 | 145 | 40,523 |

Number of widows, 35; orphans, 110.

Number of Persons Employed by each Company and Number of Employes per Life Lost and per Person Injured.

| Name of Operators. | Number of persons employed. | Number employed per life lost. | Number employed per person injured. |
|---|---|---|---|
| Pennsylvania Coal Company, | 4,051 | 675 | 150 |
| Lehigh Valley Coal Company, | 3,076 | 307 | 128 |
| Butler Mine Company, Limited, | 896 | 224 | 179 |
| Newton Coal Mining Company, | 564 | ..... | 70 |
| Old Forge Coal Mining Company, | 579 | 115 | 96 |
| Delaware, Lackawanna and Western Railroad Company, | 889 | 444 | 81 |
| Forty Fort Coal Company, | 608 | 151 | 102 |
| Delaware and Hudson Canal Company, | 429 | 107 | 214 |
| Thomas Waddell Estate, | 267 | ..... | 133 |
| John C. Haddock, | 459 | 459 | 92 |
| Clear Spring Coal Company, | 564 | 141 | 112 |
| Hillside Coal and Iron Company, | 2 | ..... | ..... |
| Florence Coal Company, Limited, | 266 | 266 | ..... |
| W. G. Payne & Co., | 472 | 236 | 47 |
| Keystone Coal Company, | 381 | 127 | ..... |
| Avoca Coal Company, | 288 | 144 | ..... |
| Langcliffe Coal Company, Limited, | 359 | 179 | 119 |
| Stevens Coal Company, | 449 | ..... | 75 |
| Laflin Coal Company, | 314 | 157 | 314 |
| Robertson & Law, | 174 | ..... | 87 |
| Babylon Coal Company, | 256 | 64 | 36 |
| Mount Lookout Coal Company, | 633 | 316 | 79 |
| Raub Coal Company, Limited, | 339 | 339 | ..... |
| Algonquin Coal Company, | 431 | 431 | 431 |
| Laurel Run Coal Company, | 371 | 185 | 371 |
| Westminster Coal Company, | ..... | ..... | ..... |
| William B. Miner, | 96 | ..... | 96 |
| Crescent Coal Company, | 105 | ..... | 35 |
| Wyoming Coal and Land Company, | 244 | ..... | ..... |
| State Line and Sullivan Railroad Company, | 327 | ..... | ..... |
| Brookside Coal Company, | 25 | ..... | ..... |
| Anthony Brothers, | 12 | ..... | ..... |
| Total, | 17,926 | 281 | 123 |

The annual examination of applicants for mine foreman and assistant mine foreman's certificates was held in this district at the Butler Hill School building, Pittston, on June 14, 1897. The board of examiners was composed of H. McDonald, Inspector of mines; S. B. Bennett, superintendent; Howell Williams and Henry Martin, miners.

Sixteen applicants appeared for examination for mine foreman's certificates, and the following named persons passed a satisfactory examination:

John G. Ayre, Miners' Mills.

Thomas C. Miller and Richard Deeble, Avoca.

Arthur Guy Baird, Dunmore.

James B. Neale and David John, Pittston.

Thomas G. Parry, Hudson.

Twenty-six applicants were examined and recommended for assistant foreman certificates.

Very few improvements of a special nature were entered into for the year 1897 in this district, on account of the dullness of the

coal trade, which has been such as to cause considerable distress and suffering among the toilers of the mines. On an average the breakers of this district worked only a few days over half time for the year. The miners in many instances do not make a day's work when the breaker does by reason of not getting sufficient cars to load their coal. There are several reasons for this, the principal one being the overcrowding of the collieries with miners, especially in the collieries where the coal seams are low and of an inferior quality. Then, again, delays are caused by unavoidable breaking of some part of the machinery in the breakers, which causes a delay of from an hour to two or more, as the case may be; all of which has a tendency to shorten the hours of work for the miner.

### The Burning of the Maltby Breaker.

On April 2, 1897, the Maltby breaker of the Lehigh Valley Coal Company, located at Maltby, was discovered to be on fire. Strenuous efforts were made to save the structure, but they were of no avail. It was completely destroyed, with all the machinery, in a few hours.

A new breaker has been erected on the site of the old one, which started to prepare and ship coal on Saturday, July 17. This is the quickest work on record, as the plans had to be drawn and lumber and machinery provided. The structure was completed in 106 days.

### The Burning of the Hunt Breaker.

The Hunt breaker, located at Maltby, and owned by the D., L. & W. R. R. Company, and leased to the Wyoming Coal and Land Company, in June, 1895, was totally destroyed by fire early on Friday morning, May 28, which caused a suspension of the mine until a breaker could be built on the company's land close to the mine opening. The new breaker was commenced on August 7, and commenced to prepare and ship coal in December, 1897. The capacity is 800 tons per day and the breaker is so arranged that the coal from the pockets can be drawn into the cars on two separate tracks under the breaker. A new branch of the Lehigh Valley Railroad was constructed from their main line to the breaker, a distance of a mile, on which company's road the coal will be shipped to market.

### Colliery Improvements for 1897.

Lehigh Valley Coal Company.—The Henry hoisting shaft was retimbered from the rock to the surface, 83 feet, with the best 12x12 yellow pine timber. New buntons and guides were also put in, which puts the mine in first class condition.

At the Maltby colliery two new horizontal tubular boilers of 150 horse power each were erected at the shaft, and the old cylinder boil-

ers at the breaker were abandoned. In the mine an additional intake air course was driven in the eleven-foot seam and the return air course enlarged, which increased the volume of air in the six-foot vein from 85,000 cubic feet to 145,000 cubic feet per minute.

Pennsylvania Coal Company.—The No. 6 shaft was enlarged from 10x16 feet to 10x31 feet to make room for two hoist-ways a pump-way and an air-way from the surface to the Pittston seam, a distance of 312 feet, which shaft was then continued down to the Red Ash vein 300 feet. The location for a new breaker has been staked out to be built in the spring of 1898, which will prepare the coal from shafts Nos. 5, 6 and 11.

At No. 4 shaft of this company three new Babcock and Wilcox water tube boilers of 150 horse power each were erected, which take the place of twelve cylindrical boilers formerly used. Also at he Ewen breaker six Babcock and Wilcox boilers were erected and put in operaton on February 13, 1897, which supply steam to the breaker, and to No. 7 and Hoyte shafts, supplanting the 27 cylindrical boilers previously used.

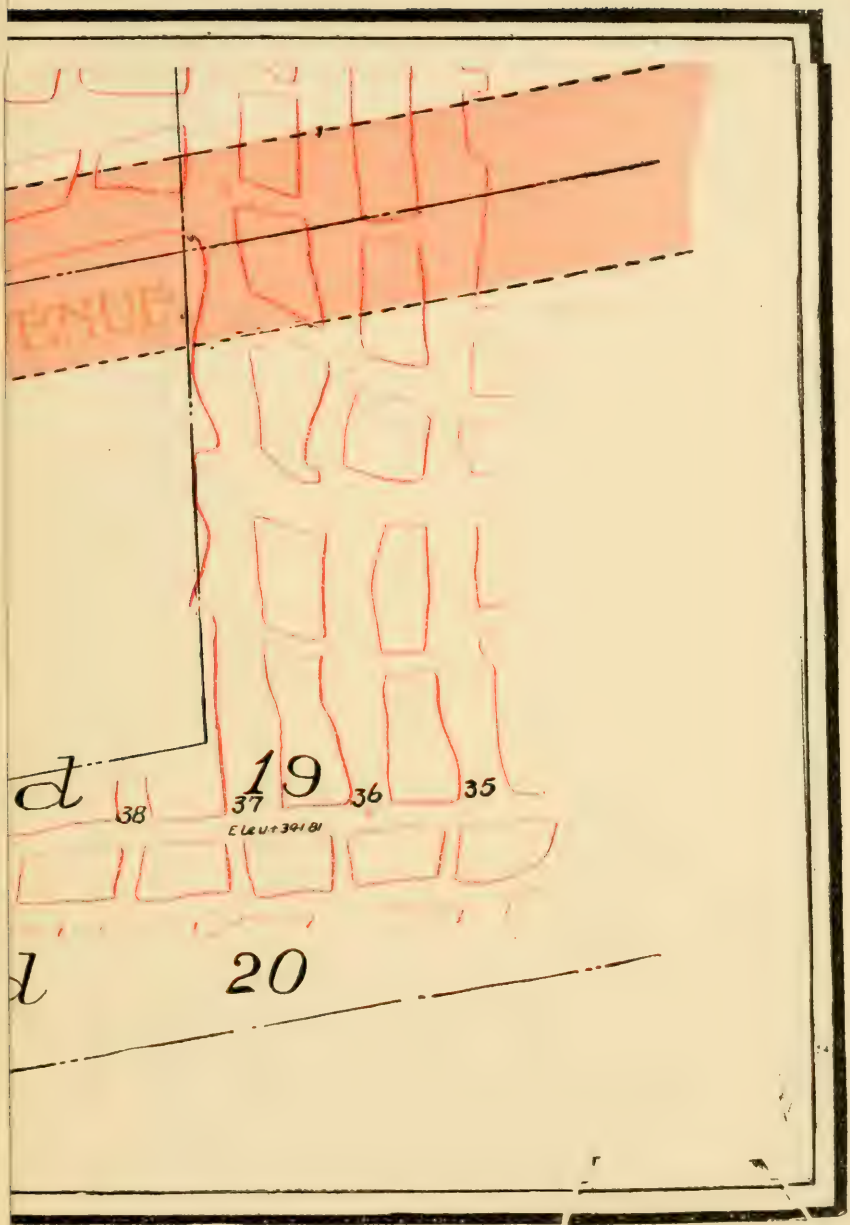
Forty Fort Coal Company.—At the Harry E., a new pair of First motion engines have been placed on the head of the inside slope in the Red Ash seam. Diameter of cylinders 30 inches, length of stroke 48 inches. The drum shaft is 14 inches in diameter and made of steel, length being 28½ feet. There will be 8,000 feet of one and one-half inch rope on the drum; 15 cars will be hoisted on a trip.

Raub Coal Company.—At the Louise Colliery an addition of 36 feet was built to the breaker and new machinery placed in position, thereby increasing the capacity of the breaker to 800 tons per day. New openings have been driven from the surface to the Ross and Red Ash seams by tunnels on the property lately acquired by the company. A small locomotive takes the coal from these openings to the breaker, a distance of one mile.

At 5 P. M., March 1, 1897, a settling of the surface was discovered on the east side of Eighth street, in the borough of Wyoming, Pa., which caused considerable anxiety to the people who resided in that vicinity. Realizing that the workings of the Pittston seam of the Mount Lookout Colliery had extended under that portion of the town, word was sent to notify William A. Thomas, the inside foreman of the colliery, of the fact. He immediately descended the shaft to make an investigation of the mine. On reaching the foot he encountered a rush of sand and water coming through the rock tunnel. Knowing the danger of being caught by the rush, he retreated to the foot of the shaft and was hoisted to the surface again. The mine had stopped work that day at 3 P. M., and all the men had come out some time before the rush took place. Therefore, the officials did not attempt to go down again for one hour. When the

foot of the shaft was again reached, the rush of sand was found to have stopped, having blocked itself so effectually that it did not start again. I reached the shaft the next morning, and in company with Richard Mainwaring, superintendent; William A. Thomas, foreman, and the fire bosses of the colliery, made an investigation to locate the source of the trouble. Finding it impossible to proceed by the west heading, on account of the heading being blocked by sand, the north heading was next tried, and by going through the air shaft to the top of the anticlinal, we reached the face of the workings of the west side on road 7 (See sketch) by way of the counter heading, reaching chamber 49. The pillars were found to be in good condition and no indications that a squeeze or cove had taken place, but unmistakable indications showed that a pot-hole or washout had been encountered in one of the inside chambers, as the workings were strewn with the round cobble stone peculiar to this vicinity. An interview with the miners who worked those breasts was had and Frank Miller, who worked in chamber 52, said that on the day above mentioned he left for home about 12 o'clock, intending to procure a suit of oil clothes, as he had, after firing one blast that morning, struck a heavy stream of water in his chamber, which made his place very wet. After a careful examination of the workings in proximity to the trouble, it was decided that the immediate danger was over. Therefore, Mr. Thomas, the mine foreman, was told to proceed and clean the headings up around the foot of the shaft. A meeting of representative mining men was called, and was held in the office of the company at Scranton, to decide what means should be adopted to guard against a future starting of the sand. It was there decided to build eight dams of brick sufficiently strong to wall off this part of the workings, which amounts in area to about 13 acres. It took a week to build the temporary dams and clear the mine of sand and debris, preparatory to again mining coal, which was resumed on March 9, 1897. The building of the permanent dams was commenced on the first of April and finished early in June. The amount of material used was as follows: 613 barrels of cement, 261,200 hard red brick, 6 cars of sand, 6 cast iron pipes, 20 inches in diameter with flanges reduced to 4 inches, outlet, with six 4-inch outlet valves for same. Three of the above mentioned pipes were placed in the dams on road 7 and three on road 20, with the 4 inch valves attached to each. These pipes and valves are to be used for relief in case of emergency. The total cost of building the dams was $9,076.32.

In submitting my report, I would respectfully call attention to the law creating the office of chief of Bureau of Mines, passed by the late Legislature. While the law in many respects is a good one, yet in my opinion it has its bad features as well, which all who are

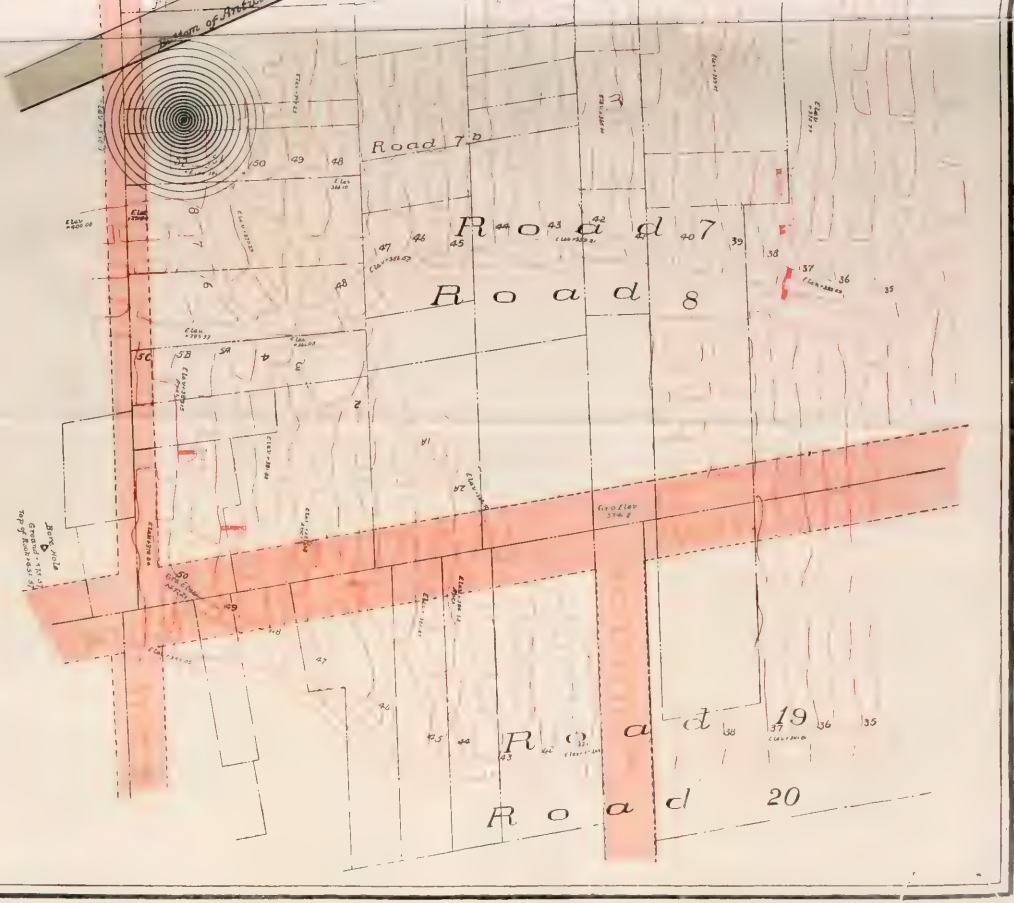

d
19
38
37
36
35
20

# Mount Lookout Colliery
# Wyoming, Pa.

Showing a portion of the Pittston
or 11ft Vein where the quicksand came
in, March 1st 1897 at Breast 52 Road 7

Scale 100ft = 1 Inch

Simpson & Watkins Engineering Department
Scranton, Pa. Oct. 6th 1897.


Road 7
Road 7
Road 8
Road 19
Road 20

acquainted with mining will have to admit. For instance, is the mining industry of the State of Pennsylvania of so little importance to the general public that, while placing a chief at the head of this industry, a department could not be also made which would be independent of any other department at Harrisburg? It is at present subject to the Department of Internal Affairs, the heads of which acknowledge in their report that they are not versed in the mining business sufficiently to express an opinion as to what should be done. Yet the appointing power of the subordinates in the office of the chief is refused him who should be the most competent person to select his help, and so bring the bureau to that efficiency for which it was intended. I likewise call attention to section 9, which reads as follows: "That the mine Inspector of each district of this State shall, within six months after the final passage and approval of this act, deposit in the bureau of mines an accurate map or plan of such coal mine, which may be on tracing muslin or sun print drawn to a prescribed scale, which map or plan shall show the actual location of all openings, excavations, shafts, tunnels, slopes, planes, main headings, cross headings and rooms or working places in each strata operated, pumps, fans or other ventilation apparatus, the entire course and direction of air currents, the relation and proximity of the workings of such coal mines to all other adjoining mines or coal lands, and the relative elevation of all tunnels and headings and of the face of working places near to or approaching boundary lines or adjacent mines, and on or before the close of each calendar year transmit to the chief of the Bureau of Mines a supplemental map or plan showing all excavations, changes and additions made in such mine during the year, drawn to the scale as the first mentioned map or plan. All such maps or plans to be and remain in the Bureau of Mines as a part of the records of that office."

It is not my intention to enter into a general discussion of this section. I will leave it to the criticism of the mining public, who know how impossible it would be for the Inspector of mines to furnish the information this section calls for, with the present facilities, time, and help at his command.

## Recapitulation of Fatal Accidents.

| | Causes of Accidents. | | | | | | | | Occupation. | | | | | | | | Nationality. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | By explosions of fire damp. | By falls of coal and roof. | By falling down shafts. | By mine cars underground. | By explosions of powder and blasts. | Miscellaneous causes inside of mine. | Miscellaneous causes outside. | Total. | Miners. | Laborers. | Runners and drivers. | Door tenders | Foremen and assistants. | Company day men. | Outside hands. | Total. | American. | Welsh. | Irish. | English. | Polish. | Hungarian. | German. | Total. |
| January, | ..... | 1 | ..... | 1 | ..... | ..... | 2 | 7 | 3 | 1 | 1 | ..... | ..... | ..... | 2 | 7 | 1 | ..... | ..... | 1 | 1 | 3 | 1 | 7 |
| February, | ..... | 2 | ..... | ..... | ..... | ..... | ..... | 2 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | 2 | ..... | ..... | 2 |
| March, | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 1 |
| April, | ..... | 2 | ..... | ..... | 2 | 2 | ..... | 6 | 3 | 3 | ..... | 1 | ..... | ..... | ..... | 6 | 1 | 1 | 1 | ..... | 3 | ..... | ..... | 6 |
| May, | ..... | 2 | ..... | 2 | 1 | ..... | ..... | 5 | 2 | 1 | 1 | ..... | ..... | ..... | 1 | 5 | 1 | ..... | ..... | 1 | 2 | 1 | ..... | 5 |
| June, | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 1 |
| July, | ..... | 6 | ..... | 1 | ..... | ..... | ..... | 7 | 5 | ..... | 1 | ..... | 1 | ..... | ..... | 7 | 2 | 1 | 2 | ..... | 1 | 1 | ..... | 7 |
| August, | ..... | 2 | ..... | 1 | 2 | ..... | ..... | 5 | 3 | 1 | 1 | ..... | ..... | ..... | ..... | 5 | 2 | 2 | ..... | ..... | 1 | ..... | ..... | 5 |
| September, | ..... | 5 | ..... | ..... | 1 | ..... | 1 | 7 | 3 | 2 | 1 | ..... | 1 | ..... | ..... | 7 | ..... | 1 | 2 | ..... | 1 | 3 | ..... | 7 |
| October, | 3 | 4 | 1 | 1 | 2 | ..... | ..... | 11 | 6 | 3 | ..... | ..... | ..... | 2 | ..... | 11 | 2 | ..... | 2 | 2 | 3 | 2 | ..... | 11 |
| November, | ..... | 2 | ..... | ..... | 1 | ..... | ..... | 3 | 1 | 2 | ..... | ..... | ..... | ..... | ..... | 3 | ..... | ..... | ..... | ..... | 2 | 1 | ..... | 3 |
| December, | 1 | 4 | ..... | 2 | ..... | ..... | 1 | 8 | 3 | 2 | 1 | ..... | ..... | 1 | 1 | 8 | ..... | 1 | 2 | 1 | 3 | ..... | 1 | 8 |
| Total, | 5 | 34 | 1 | 8 | 9 | 2 | 4 | 63 | 30 | 17 | 6 | 1 | 2 | 3 | 4 | 63 | 9 | 6 | 9 | 5 | 21 | 11 | 2 | 63 |

TABLE—Showing number of each class of serious non-fatal accidents, number of each class of employes, and the nationality of persons seriously injured for each month during the year 1897.

| | Causes of Non-Fatal Accidents. | | | | | | | Occupation of Those Injured. | | | | | | | Nationality of Persons Injured. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | By explosions of fire damp. | By falls of roof and coal. | By mine cars inside of the mines. | By explosions of powder and blasts. | By miscellaneous causes inside of the mines. | By miscellaneous causes on surface. | Total. | Miners. | Laborers. | Runners and drivers. | Door tenders. | Foremen and assistants. | Company workmen. | Outside employes. | Total. | American. | Welsh. | Irish. | Polish. | English. | Scotch. | German. | Hungarian. | Russian. | Total. | Very slightly injured not included in the foregoing table. |
| January, | ..... | 2 | 1 | ..... | ..... | 2 | 5 | 1 | 1 | 2 | .... | .... | ..... | 1 | 5 | 1 | ..... | 1 | 1 | ..... | ..... | ..... | 2 | ..... | 5 | 1 |
| February, | 1 | ..... | ..... | 1 | 3 | ..... | 5 | 2 | 1 | 1 | .... | .... | 1 | ..... | 5 | 1 | ..... | ..... | 2 | 1 | ..... | ..... | 1 | ..... | 5 | 3 |
| March, | ..... | 5 | 2 | 3 | 1 | 1 | 12 | 4 | 4 | 2 | 1 | .... | ..... | 1 | 12 | 4 | ..... | 3 | 3 | ..... | ..... | 2 | ..... | ..... | 12 | 2 |
| April, | ..... | 2 | 5 | 1 | 1 | ..... | 9 | 4 | 3 | .... | .... | .... | 2 | ..... | 9 | 3 | ..... | ..... | 3 | ..... | ..... | ..... | 3 | ..... | 9 | 3 |
| May, | 2 | 3 | 2 | ..... | ..... | 1 | 10 | 4 | 3 | 3 | .... | .... | ..... | ..... | 10 | 3 | 2 | ..... | 3 | 1 | ..... | ..... | 1 | ..... | 10 | 1 |
| June, | 1 | 8 | ..... | 3 | 2 | ..... | 14 | 6 | 6 | 2 | .... | .... | ..... | ..... | 14 | 1 | 1 | 1 | 7 | 1 | ..... | ..... | 2 | 1 | 14 | 4 |
| July, | 2 | 7 | 4 | ..... | ..... | 3 | 16 | 2 | 9 | 2 | .... | .... | 1 | 2 | 16 | 4 | ..... | ..... | 3 | 2 | 2 | ..... | 4 | 1 | 16 | 5 |
| August, | 1 | 9 | 5 | 1 | ..... | 2 | 18 | 5 | 3 | 6 | .... | 2 | 1 | 1 | 18 | 7 | 1 | 2 | 4 | 2 | ..... | ..... | 2 | ..... | 18 | 3 |
| September, | 2 | 9 | 2 | 1 | 1 | ..... | 15 | 4 | 7 | 2 | .... | 1 | 1 | ..... | 15 | 1 | 1 | 5 | 7 | ..... | ..... | ..... | 1 | ..... | 15 | 3 |
| October, | 3 | 7 | 1 | ..... | ..... | ..... | 11 | 3 | 6 | 1 | .... | .... | 1 | ..... | 11 | 3 | 1 | ..... | 2 | 1 | ..... | 2 | 2 | ..... | 11 | 4 |
| November, | 4 | 2 | 7 | 2 | 1 | ..... | 16 | 6 | 2 | 5 | 2 | .... | 1 | ..... | 16 | 3 | 1 | ..... | 7 | 2 | ..... | 3 | ..... | ..... | 16 | 3 |
| December, | 2 | 6 | 4 | ..... | ..... | 2 | 14 | 6 | 1 | 6 | .... | .... | ..... | 1 | 14 | 4 | ..... | 4 | 5 | 1 | ..... | ..... | ..... | ..... | 14 | 3 |
| Total, | 18 | 62 | 33 | 12 | 9 | 11 | 145 | 47 | 46 | 32 | 3 | 3 | 8 | 6 | 145 | 35 | 7 | 16 | 47 | 11 | 2 | 7 | 18 | 2 | 145 | 35 |

TABLE No. 1.—Showing Location, etc., of Collieries in the Third Anthracite Mine District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Barnum No. 1 shaft, | Pennsylvania Coal Company, | Luzerne, | Alex. Bryden, general manager; | Dunmore. |
| Barnum No. 2 shaft, | Pennsylvania Coal Company, | Luzerne, | James Young, inside superintendent; Adam Harkness and | Dunmore. |
| Barnum No. 3 shaft, | Pennsylvania Coal Company, | Luzerne, | James Y. Bryden, district superintendents. | Dunmore. |
| Laws' shaft, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| No. 13 shaft, | Pennsylvania Coal Company, | Lackawanna, | do. do. | Pittston. |
| No. 9 shaft, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| Nos. 10 and 10 Jr. shafts, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| Nos. 1 and 8 shafts, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| No. 4 shaft, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| No. 7 shaft, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| No. 5 shaft, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| No. 6 shaft, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| No. 11 shaft, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| No. 14 shaft, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| No. 14 tunnels, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| Hoyte shaft, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| Schooley shaft, | Pennsylvania Coal Company, | Luzerne, | do. do. | Pittston. |
| Butler shaft, | Butler Mine Company, Limited, | Luzerne, | S. B. Bennett, | Pittston. |
| Fernwood shaft, | Butler Mine Company, Limited, | Luzerne, | S. B. Bennett, | Pittston. |
| Chapman shaft, | Butler Mine Company, Limited, | Luzerne, | S. B. Bennett, | Pittston. |
| Twin shaft, | Newton Coal Company, | Luzerne, | John B. Law, general supt., | Pittston. |
| Ravine shaft, | Newton Coal Company, | Luzerne, | Griffith Thomas, district supt., | Pittston. |
| Phoenix shaft, | Old Forge Coal Mining Company, | Luzerne, | John B. Law, general supt., | Pittston. |
| Columbia shaft, | Old Forge Coal Mining Company, | Luzerne, | Chas. Ackman, district supt., | Pittston. |
| Prospect shaft, | Lehigh Valley Coal Company, | Luzerne, | W. A. Lathrop, general supt.; | Wilkes-Barre. |
| Oakwood shaft, | Lehigh Valley Coal Company, | Luzerne, | Eli Conner, assistant supt. | Wilkes-Barre. |
| Midvale slope, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Wilkes-Barre. |
| Wyoming shaft, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Wilkes-Barre. |
| Henry shaft and slope, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Wilkes-Barre. |
| Exeter shaft, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Wilkes-Barre. |
| Heidelburg shaft, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Wilkes-Barre. |
| Heidelburg slope, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Wilkes-Barre. |
| Maltby shaft, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Wilkes-Barre. |
| Clear Spring shaft, | Clear Spring Coal Company, | Luzerne, | J. L. Cake, | Pittston. |
| Consolidated slope and shaft, | Hillside Coal and Iron Company, | Luzerne, | W. A. May, | Scranton. |
| Elmwood No. 2 shaft, | Florence Coal Company, Limited, | Luzerne, | Chas. P. Ford, | Scranton. |
| East Boston shaft, | W. G. Payne & Co., | Luzerne, | John Parry, | Kingston. |
| Ridgewood slope and shaft, | Keystone Coal Company, | Luzerne, | John T. Jetter, | Wilkes-Barre. |
| Katy Did tunnels and shaft, | John M. Robertson & Co., | Luzerne, | John M. Robertson, | Moosic. |
| Stevens slope and shaft, | Stevens Coal Co., | Luzerne, | David Evans, | Pittston. |
| Laflin shaft, | Laflin Coal Company, | Luzerne, | R. G. Brooks, | Scranton. |
| Langcliffe slope and shaft, | Langcliffe Coal Company, | Luzerne, | R. G. Brooks, | Scranton. |
| Avoca shaft, | Avoca Coal Company, | Luzerne, | W. H. Hollister, | Avoca. |
| Pine Ridge shaft, | Algonquin Coal Company, | Luzerne, | George T. Nealley, | Wilkes-Barre. |
| Laurel Run slope, | Laurel Run Coal Company, | Luzerne, | George T. Nealley, | Wilkes-Barre. |
| Louise drifts, | Raub Coal Company, | Luzerne, | C. R. Marcy, | Luzerne. |

| | | | | | |
|---|---|---|---|---|---|
| Bernice drifts, | State Line and Sullivan Railroad Co., | Sullivan, | | I. O. Blight. | Towanda. |
| Westminster drifts, | Westminster Coal Company, | Luzerne, | | F. C. Sturgess, | Wilkes-Barre. |
| Crescent drifts, | Crescent Coal Company, | Luzerne, | | G. W. Milnes, | Scranton. |
| Miner's drifts, | Wm. B. Miner, | Luzerne, | | Wm. B. Miner, | Miners' Mills. |
| Hunt tunnel, | Wyoming Coal and Land Company, | Luzerne, | | J. N. Rice, | Scranton. |
| Delaware shaft, | Delaware and Hudson Canal Company, | Luzerne, | | C. C. Rose, | Scranton. |
| Pettebone shaft, | Del., Lacka. and Western Railroad Co., | Luzerne, | | W. R. Storrs, | Scranton. |
| Hallstead shaft, | Del., Lacka. and Western Railroad Co., | Luzerne, | | W. R. Storrs, | Scranton. |
| Forty Fort shaft, | Forty Fort Coal Company, | Luzerne, | | J. L. Crawford, | Scranton. |
| Harry E. shaft, | Forty Fort Coal Company, | Luzerne, | | J. L. Crawford, | Scranton. |
| Babylon shaft, | Babylon Coal Company, | Luzerne, | | J. L. Crawford, | Scranton. |
| Mount Lookout shaft, | Mount Lookout Coal Company, | Luzerne, | | J. L. Crawford, | Scranton. |
| Mill Hollow shaft, | Thos. Waddell estate, | Luzerne, | | David Roberts, | Dorranceton. |
| Black Diamond shaft, | John C. Haddock, | Luzerne, | | James B. Davis, | Plymouth. |
| Brookside washery, | Brookside Coal Company, | Luzerne, | | Lewis S. Waters, | Scranton. |
| Bennett washery, | Anthoney Brothers, | Luzerne, | | James F. Sharkey, | Miners' Mills. |

TABLE NO. 2.—Gives the Total Number of Tons of Coal Mined in each Colliery, Number of Days Worked, Number of Employes, Number of Persons Killed and Injured, Number of Kegs of Powder, etc., used in the Third Anthracite District for the year ending December 31, 1897.

| Names of Collieries. | Location. | Total production in tons of coal. | Quantity of coal, in tons, used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments, in tons, of coal. | Number days worked. | Number persons employed. | Number fatal accidents. | Number non-fatal accidents. | Number kegs powder used. | Number pounds dynamite used. | Number steam boilers. | Number horses and mules. | Number mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pennsylvania Coal Company** | | | | | | | | | | | | | | |
| Barnum, three shafts, | Marcy township, .. | 260,449 | 7,814 | ..... | 252,635 | 152.50 | 590 | 2 | 5 | 8,378 | 127 | 6 | 56 | 1 |
| No. 13 and Laws' shafts, | Pittston, ..... | 187,846 | 8,205 | ..... | 179,541 | 149.50 | 482 | ..... | 3 | 4,317 | 978 | 17 | 48 | 1 |
| Nos. 9, 10 and 10 Jr. shafts, | Hughestown, ..... | 174,876 | 7,346 | ..... | 167,530 | 146.50 | 559 | 3 | 3 | 5,508 | 355 | 6 | 67 | ..... |
| Nos. 1 and 8 shafts, | Hughestown, ..... | 106,260 | 3,607 | ..... | 102,653 | 142.25 | 343 | ..... | 1 | 2,857 | 159 | 8 | 38 | ..... |
| Nos. 7, 4 and Hoyte shafts, | Jenkins township, | 200,105 | 16,236 | ..... | 183,869 | 121.50 | 732 | 1 | 3 | 7,492 | 2,507 | 9 | 56 | 4 |
| Nos. 5, 6 and 11 shafts, | Jenkins township, | 124,758 | 5,347 | ..... | 119,411 | 144.75 | 442 | ..... | 5 | 3,728 | 795 | 23 | 67 | ..... |
| No. 14 shaft and tunnels, | Jenkins township, | 192,729 | 11,250 | ..... | 181,479 | 143.50 | 544 | ..... | 4 | 5,552 | 1,731 | 9 | 59 | 1 |
| Schooley shaft, | Exeter borough, ... | 92,997 | 11,161 | ..... | 81,836 | 106.50 | 359 | ..... | 3 | 4,521 | 1,107 | 4 | 30 | ..... |
| Total, | ..... | 1,340,020 | 71,066 | ..... | 1,268,954 | *138.50 | 4,051 | 6 | 27 | 42,353 | 7,759 | 82 | 421 | 7 |
| **Lehigh Valley Coal Company.** | | | | | | | | | | | | | | |
| Prospect and Oakwood shafts, Midvale slope, | Plains township, .. | 184,769 | Culm. | 147 | 184,622 | 134.25 | 717 | 2 | 9 | 4,837 | 286 | 40 | 81 | 3 |
| Wyoming and Henry shafts, | Plains township, .. | 170,869 | Culm. | 3,790 | 167,079 | 157.80 | 637 | 1 | 5 | 4,652 | 9,825 | 43 | 93 | 1 |
| Maltby shaft, | Maltby township, . | 154,460 | Culm. | 1,951 | 152,509 | 100.90 | 620 | ..... | 1 | 5,274 | 8,463 | 23 | 70 | ..... |
| Exeter shaft, | Exeter ..... | 225,888 | 10,878 | 8,876 | 206,134 | 130.00 | 514 | 5 | 8 | 7,200 | 8,921 | 6 | 72 | 1 |
| Heidelburg shaft, | Pittston township, | 109,567 | 12,042 | 829 | 96,696 | 117.65 | 305 | 1 | 1 | 3,678 | 1,180 | 6 | 30 | ..... |
| Heidelburg slope, | Pittston township, | 104,516 | 7,416 | 359 | 96,741 | 126.05 | 293 | 1 | ..... | 2,423 | 414 | 9 | 39 | ..... |
| Total, | ..... | 950,069 | 30,336 | 15,952 | 903,781 | *127.75 | 3,076 | 10 | 24 | 28,064 | 29,089 | 127 | 385 | 5 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Butler Mine Company, Limited.** | | | | | | | | | | | | | |
| Butler and Chapman shafts, | Pittston township, | 17,028 | 5,512 | 1,274 | 110,242 | 168.20 | 468 | 1 | 5 | 6,140 | 2,450 | 15 | 42 | 2 |
| Fernwood shaft, | Pittston township, | 100,189 | 4,732 | 814 | 94,643 | 162.10 | 428 | 3 | ..... | 4,150 | 8,200 | 13 | 30 | ..... |
| Total, | | 217,217 | 10,244 | 2,088 | 204,885 | *165.15 | 896 | 4 | 5 | 10,290 | 10,650 | 28 | 72 | 2 |
| **Del., Lacka. and Western R. R. Co.** | | | | | | | | | | | | | | |
| Hallstead shaft, | Duryea, | 98,173 | 1,800 | 4,892 | 91,481 | 138.60 | 360 | ..... | 3 | 4,838 | 2,700 | 24 | 54 | ..... |
| Pettebone shaft, | Kingston township, | 150,184 | 6,000 | 3,568 | 140,616 | 156.50 | 529 | 2 | 8 | 5,115 | 4,675 | 21 | 76 | ..... |
| Total, | | 248,357 | 7,800 | 8,460 | 232,097 | *147.50 | 889 | 2 | 11 | 9,953 | 7,375 | 45 | 130 | ..... |
| **Forty Fort Coal Company.** | | | | | | | | | | | | | | |
| Forty Fort shaft, | Forty Fort, | ..... | 10,306 | ..... | ..... | ..... | 82 | ..... | 1 | 560 | ..... | 18 | 18 | ..... |
| Harry E. shaft, | Forty Fort, | 265,691 | 14,651 | 2,075 | 238,659 | 160.30 | 526 | 5 | 5 | 8,527 | ..... | 5 | 95 | 1 |
| Total, | | 265,691 | 24,957 | 2,075 | 238,659 | *160.30 | 608 | 5 | 6 | 9,087 | ..... | 23 | 113 | 1 |
| **Miscellaneous Coal Companies.** | | | | | | | | | | | | | | |
| Twin and Seneca shafts, | Pittston, | 134,048 | 26,408 | 11,061 | 96,579 | 185.70 | 564 | ..... | 8 | 7,673 | 9,200 | 37 | 50 | 4 |
| Phoenix and Columbia shafts, | Duryea, | 273,476 | 13,360 | 6,678 | 253,438 | 241.10 | 579 | 5 | 6 | 7,088 | 28,940 | 8 | 61 | ..... |
| Delaware shaft, | Mill Creek, | 178,376 | Culm. | 3,318 | 175,058 | 190.00 | 429 | 4 | 2 | 5,948 | 3,308 | 19 | 63 | ..... |
| Mill Hollow shaft, | Luzerne borough, | 62,708 | 8,490 | 2,363 | 51,855 | 123.10 | 267 | ..... | 2 | 1,694 | 1,000 | 17 | 27 | ..... |
| Black Diamond shaft, | Luzerne borough, | 202,228 | 18,400 | 7,571 | 176,257 | 210.10 | 459 | 1 | 5 | 6,500 | 2,100 | 24 | 52 | 1 |
| Clear Spring shaft, | Pittston, | 171,679 | Culm. | 14,615 | 157,064 | 196.75 | 564 | 4 | 6 | 5,810 | 300 | 26 | 59 | ..... |
| Consolidated shaft and slope, | Avoca, | 33,085 | 1,648 | 459 | 30,978 | 38.00 | 2 | ..... | ..... | 884 | 136 | 13 | 34 | 2 |
| Elmwood, two shafts, | Pittston township, | 85,169 | 11,000 | 4,452 | 69,717 | 126.80 | 266 | 1 | ..... | 2,542 | 1,115 | 17 | 32 | 1 |
| East Boston shaft, | Kingston township, | 164,630 | Culm. | 3,055 | 161,575 | 159.80 | 472 | 2 | 10 | 4,760 | 1,800 | 26 | 39 | ..... |
| Ridgewood shaft and slope, | Plains township, | 109,201 | 9,400 | 1,244 | 98,557 | 123.10 | 381 | 3 | ..... | 7,432 | 4,500 | 8 | 47 | ..... |
| Avoca shaft, | Avoca, | 59,215 | Culm. | 1,170 | 58,045 | 137.40 | 288 | 2 | ..... | 2,754 | 500 | 6 | 35 | ..... |
| Langcliffe shaft and tunnel, | Avoca, | 93,378 | 4,100 | 601 | 88,677 | 148.30 | 359 | 2 | 3 | 4,386 | 1,650 | 10 | 45 | 1 |
| Laflin shaft, | Laflin, | 72,230 | 6,480 | 2,123 | 63,627 | 93.70 | 314 | 2 | 1 | 4,489 | 3,000 | 5 | 31 | 1 |
| Katy Did tunnels, | Avoca, | 59,712 | 1,200 | 1,045 | 57,467 | 127.75 | 174 | ..... | 2 | 1,873 | ..... | 5 | 22 | 1 |
| Babylon shaft, | Duryea, | 130,555 | 7,395 | 670 | 122,490 | 120.20 | 256 | 4 | 7 | 4,459 | 1,200 | 13 | 66 | ..... |
| Mount Lookout shaft, | Wyoming, | 307,727 | 17,419 | 5,351 | 284,957 | 165.10 | 633 | 2 | 8 | 12,547 | 6,200 | 24 | 97 | 1 |
| Louise drifts, | Luzerne borough, | 47,828 | 1,280 | 3,698 | 42,850 | 99.70 | 339 | 1 | ..... | 2,871 | 2,100 | 2 | 29 | ..... |
| Pine Ridge shaft, | Miners' Mills, | 136,688 | Culm. | 3,808 | 122,880 | 151.00 | 431 | 1 | 1 | 3,971 | 900 | 5 | 42 | ..... |
| Laurel Run slope, | Parsons, | 90,440 | 5,110 | 1,845 | 83,485 | 121.90 | 371 | 2 | 1 | 3,200 | 600 | 12 | 43 | ..... |
| Westminster tunnel, | Jenkins township, | 3,707 | 1,000 | ..... | 2,707 | ..... | ..... | ..... | ..... | 300 | ..... | 2 | 7 | ..... |
| Miner's tunnel, | Jenkins township, | 11,697 | 300 | 100 | 11,297 | 102.00 | 96 | ..... | 1 | 1,250 | 2,500 | 2 | 10 | ..... |
| Crescent tunnels, | Jenkins township, | 38,886 | 1,190 | 10 | 37,686 | 134.20 | 105 | ..... | 3 | 2,475 | 500 | 1 | 9 | ..... |
| Hunt tunnel, | Wyoming, | 35,726 | 7,187 | 1,339 | 27,200 | 74.00 | 244 | ..... | ..... | 1,490 | 9 950 | 5 | 13 | 1 |
| Bernice drifts, | Bernice, Sull'n co., | 164,046 | 2,437 | 1,454 | 160,155 | 209.00 | 327 | ..... | ..... | 1,992 | 1,000 | 6 | 14 | 2 |
| Stevens' shaft and slope, | Exeter, | 155,013 | 10,000 | 2,237 | 142,776 | 121.90 | 449 | ..... | 6 | 5,607 | 2,300 | 16 | 43 | 1 |
| Brookside washery, | Avoca, | 31,421 | 1,200 | ..... | 30,221 | 86.75 | 25 | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| Bennett washery, | Miners' Mills, | 1,600 | 500 | 100 | 1,000 | 20.00 | 12 | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| Total, | | 2,854,469 | 155,504 | 80,367 | 2,618,598 | *154.75 | 8,406 | 36 | 72 | 103,995 | 54,789 | 313 | 970 | 16 |

Recapitulation. TABLE No. 2.—Continued.

| Names of Collieries. | Location. | Total production in tons of coal. | Quantity of coal, in tons, used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments, in tons, of coal. | Number days worked. | Number persons employed. | Number fatal accidents. | Number non-fatal accidents. | Number kegs powder used. | Number pounds dynamite used. | Number steam boilers. | Number horses and mules. | Number mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pennsylvania Coal Company, | | 1,340,020 | 71,066 | ..... | 1,268,954 | 138.50 | 4,051 | 6 | 27 | 42,353 | 7,759 | 82 | 421 | 7 |
| Lehigh Valley Coal Company, | | 950,069 | 30,336 | 15,952 | 903,781 | 127.75 | 3,076 | 10 | 24 | 28,064 | 29,089 | 127 | 385 | 5 |
| Butler Mine Company, Limited, | | 217,217 | 10,244 | 2,088 | 204,885 | 161.15 | 896 | 4 | 5 | 10,290 | 10,650 | 28 | 72 | 2 |
| Del., Lack. and Western R. R. Co., | | 248,357 | 7,800 | 8,460 | 232,097 | 147.50 | 889 | 2 | 11 | 9,953 | 7,375 | 45 | 130 | ..... |
| Forty Fort Coal Company, | | 265,691 | 24,957 | 2,075 | 238,659 | 160.50 | 608 | 5 | 6 | 9,087 | ..... | 23 | 113 | 1 |
| Miscellaneous coal companies, | | 2,854,469 | 155,504 | 80,367 | 2,618,598 | 154.75 | 8,406 | 36 | 72 | 103,995 | 54,799 | 313 | 970 | 16 |
| Total for all coal companies, | | 5,875,823 | 299,907 | 108,942 | 5,466,974 | *149.00 | 17,926 | 63 | 145 | 203,742 | 109,672 | 618 | 2,091 | 31 |

*Average.

TABLE No. 3.—Showing the Number of each Class of Employes at each Colliery in the Third Anthracite District, during the Year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman and mine bors. | Fire bosses. | Mine s. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | Grand total, inside and outside. |
| Pennsylvania Coal Company. | | | | | | | | | | | | | | | | |
| Barnum, three shafts, | 2 | 3 | 168 | 168 | 58 | 23 | 26 | 448 | 1 | 4 | 14 | 70 | 51 | 2 | 142 | 590 |
| No. 13 and Laws' shafts, | 2 | 2 | 135 | 135 | 37 | 14 | 23 | 348 | 1 | 4 | 17 | 68 | 43 | 1 | 134 | 482 |
| Nos. 9, 10 and 10 Jr. shafts, | 2 | 4 | 147 | 146 | 63 | 21 | 33 | 416 | 1 | 4 | 14 | 79 | 44 | 1 | 143 | 559 |
| Nos. 1 and 8 shafts, | 1 | 2 | 95 | 97 | 30 | 7 | 13 | 245 | 1 | 3 | 10 | 56 | 27 | 1 | 98 | 343 |
| Nos. 7, 4 and Hoyte shafts, | 3 | 5 | 196 | 208 | 44 | 24 | 53 | 533 | 1 | 6 | 24 | 115 | 52 | 1 | 199 | 732 |
| Nos. 5, 6 and 11 shafts, | 3 | 3 | 112 | 107 | 42 | 13 | 34 | 314 | 1 | 4 | 14 | 70 | 38 | 1 | 128 | 442 |
| No. 14 shaft and tunnels, | 3 | 3 | 137 | 152 | 51 | 10 | 34 | 390 | 1 | 4 | 17 | 84 | 47 | 1 | 154 | 544 |
| Schooley shaft, | 2 | 2 | 98 | 90 | 24 | 6 | 22 | 244 | 1 | 3 | 15 | 69 | 26 | 1 | 115 | 359 |
| Total, | 18 | 24 | 1,088 | 1,103 | 349 | 118 | 238 | 2,938 | 8 | 32 | 125 | 611 | 328 | 9 | 1,113 | 4,051 |
| Lehigh Valley Coal Company. | | | | | | | | | | | | | | | | |
| Prospect, Oakwood and Midvale shafts, | 3 | 6 | 140 | 154 | 70 | 18 | 57 | 448 | 1 | 14 | 20 | 150 | 79 | 5 | 269 | 717 |
| Wyoming and Henry shafts, | 2 | 4 | 131 | 146 | 67 | 12 | 66 | 428 | 2 | 11 | 25 | 78 | 79 | 4 | 199 | 627 |
| Maltby shaft, | 1 | 2 | 245 | 70 | 60 | 16 | 48 | 442 | 1 | 7 | 16 | 75 | 76 | 3 | 178 | 620 |
| Exeter shaft, | 1 | 2 | 126 | 104 | 52 | 1 | 42 | 328 | 1 | 7 | 12 | 84 | 78 | 4 | 186 | 514 |
| Heidelburg shaft, | 1 | 1 | 60 | 46 | 22 | 1 | 17 | 148 | 1 | 5 | 5 | 85 | 46 | 3 | 145 | 293 |
| Heidelburg slope, | 1 | 1 | 60 | 48 | 20 | 3 | 18 | 151 | 1 | 5 | 7 | 118 | 20 | 3 | 154 | 305 |
| Total, | 9 | 16 | 762 | 568 | 291 | 51 | 248 | 1,945 | 7 | 49 | 85 | 590 | 378 | 22 | 1,131 | 3,076 |
| Butler Mine Company, Limited. | | | | | | | | | | | | | | | | |
| Butler and Chapman shafts, | 4 | 2 | 150 | 86 | 42 | 7 | 36 | 327 | 1 | 4 | 10 | 69 | 55 | 2 | 141 | 468 |
| Fernwood shaft, | 3 | 1 | 98 | 80 | 42 | 6 | 35 | 265 | 1 | 5 | 8 | 99 | 49 | 1 | 163 | 428 |
| Total, | 7 | 3 | 248 | 166 | 84 | 13 | 71 | 592 | 2 | 9 | 18 | 168 | 104 | 3 | 304 | 896 |

TABLE NO. 3.—Continued.

| Names of Collieries. | Occupations of Persons Employed Outside. | | | | | | | | Occupations of Persons Employed Inside. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman and mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | Grand total, inside and outside. |
| Del., Lacka. and Western R. R. Co. | | | | | | | | | | | | | | | | |
| Hallstead shaft, | 1 | 2 | 87 | 87 | 30 | 10 | 25 | 242 | 1 | 4 | 14 | 53 | 45 | 1 | 118 | 360 |
| Pettebone shaft, | 1 | 3 | 117 | 118 | 51 | 21 | 49 | 360 | 1 | 7 | 12 | 33 | 55 | 1 | 169 | 529 |
| Total, | 2 | 5 | 204 | 205 | 81 | 31 | 74 | 602 | 2 | 11 | 26 | 146 | 100 | 2 | 287 | 889 |
| Forty Fort Coal Company. | | | | | | | | | | | | | | | | |
| Forty Fort shaft, | 1 | 1 | 19 | 10 | 17 | 3 | 10 | 61 | 1 | 2 | 9 | ..... | 9 | ..... | 21 | 82 |
| Harry E. shaft, | 4 | 2 | 150 | 125 | 61 | 21 | 36 | 399 | 1 | 8 | 9 | 55 | 50 | 4 | 127 | 526 |
| Total, | 5 | 3 | 169 | 135 | 78 | 24 | 46 | 460 | 2 | 10 | 18 | 55 | 59 | 4 | 148 | 608 |
| Miscellaneous Coal Companies. | | | | | | | | | | | | | | | | |
| Twin and Seneca shafts, | 5 | 3 | 109 | 109 | 32 | 17 | 106 | 381 | 3 | 8 | 16 | 90 | 60 | 6 | 183 | 564 |
| Phoenix and Columbia shafts, | 2 | 2 | 121 | 121 | 49 | 11 | 30 | 336 | 2 | 9 | 6 | 167 | 53 | 6 | 243 | 579 |
| Delaware shaft, | 1 | 2 | 83 | 95 | 48 | 10 | 46 | 285 | 1 | 6 | 12 | 85 | 39 | 1 | 144 | 429 |
| Mill Hollow shaft, | 2 | ..... | 50 | 55 | 21 | 1 | 25 | 154 | 1 | 4 | 7 | 70 | 28 | 3 | 113 | 267 |
| Black Diamond shaft, | 2 | 3 | 90 | 72 | 64 | 14 | 22 | 267 | 1 | 6 | 21 | 123 | 37 | 4 | 192 | 459 |
| Clear Spring shaft, | 2 | 2 | 113 | 140 | 56 | 33 | 68 | 414 | 1 | 7 | 11 | 67 | 59 | 5 | 150 | 564 |
| Consolidated shaft and slope,* | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 |
| Elmwood, two shafts, | 3 | 1 | 62 | 62 | 32 | 2 | 14 | 176 | 2 | 4 | 10 | 64 | 6 | 4 | 90 | 266 |
| East Boston shaft, | 2 | 3 | 120 | 100 | 45 | 14 | 37 | 321 | 1 | 4 | 10 | 71 | 61 | 4 | 151 | 472 |
| Ridgewood shaft and slope, | 1 | 1 | 105 | 95 | 40 | 11 | 20 | 273 | 1 | 5 | 5 | 60 | 35 | 2 | 108 | 381 |
| Avoca shaft, | 1 | 1 | 70 | 54 | 46 | 12 | 17 | 201 | 1 | 3 | 5 | 43 | 32 | 3 | 87 | 288 |
| Langcliffe shaft and tunnel, | 2 | 1 | 95 | 73 | 36 | 6 | 31 | 244 | 1 | 6 | 6 | 64 | 36 | 2 | 115 | 359 |
| Laflin shaft, | 1 | 1 | 66 | 66 | 14 | 7 | 18 | 173 | 1 | 4 | 6 | 96 | 32 | 2 | 141 | 314 |
| Katy Did tunnels, | 1 | ..... | 54 | 30 | 15 | 2 | 9 | 111 | 1 | 3 | 6 | 29 | 20 | 4 | 63 | 174 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Babylon shaft, | 2 | 1 | 78 | 51 | 28 | 9 | 13 | 182 | 1 | 6 | 8 | 30 | 26 | 3 | 74 | 256 |
| Mount Lookout shaft, | 1 | 3 | 219 | 80 | 67 | 20 | 47 | 437 | 1 | 6 | 17 | 93 | 74 | 5 | 196 | 633 |
| Louise drifts, | 2 | 1 | 105 | 80 | 26 | 4 | 9 | 227 | 1 | 3 | 4 | 69 | 32 | 3 | 112 | 339 |
| Pine Ridge shaft, | 3 | 2 | 94 | 90 | 45 | 8 | 40 | 282 | 1 | 5 | 11 | 88 | 43 | 1 | 149 | 431 |
| Laurel Run slope, | 2 | 2 | 79 | 75 | 45 | 8 | 40 | 251 | 1 | 6 | 7 | 64 | 41 | 1 | 120 | 371 |
| Westminster tunnel,† | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Miner's tunnel, | 1 | ..... | 30 | 30 | 8 | 1 | 5 | 75 | 1 | 2 | 2 | 8 | 7 | 1 | 21 | 96 |
| Crescent drifts, | 1 | ..... | 30 | 20 | 9 | 2 | 5 | 67 | 1 | 2 | 2 | 21 | 11 | 1 | 38 | 105 |
| Hunt tunnel, | 1 | ..... | 45 | 37 | 20 | 6 | 11 | 120 | 1 | 4 | 8 | 85 | 24 | 2 | 124 | 244 |
| Bernice drifts, | 1 | ..... | 160 | 8 | 29 | 4 | 19 | 221 | 1 | 5 | 12 | 71 | 14 | 3 | 106 | 327 |
| Stevens shaft and slope, | 2 | 2 | 118 | 100 | 40 | 7 | 25 | 294 | 1 | 6 | 13 | 78 | 52 | 5 | 155 | 449 |
| Brookside washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 3 | ..... | 20 | 1 | 25 | 25 |
| Bennett washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 3 | 2 | 5 | 1 | 12 | 12 |
| Total, | 43 | 31 | 2,096 | 1,643 | 815 | 209 | 657 | 5,494 | 29 | 114 | 211 | 1,638 | 847 | 73 | 2,512 | 8,406 |

## Recapitulation.

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pennsylvania Coal Company, | 18 | 24 | 1,088 | 1,103 | 349 | 118 | 238 | 2,938 | 8 | 32 | 125 | 611 | 328 | 9 | 1,113 | 4,051 |
| Lehigh Valley Coal Company, | 9 | 16 | 762 | 568 | 291 | 51 | 248 | 1,945 | 7 | 49 | 85 | 590 | 378 | 22 | 1,131 | 3,076 |
| Butler Mine Company, Limited, | 7 | 3 | 248 | 166 | 84 | 13 | 71 | 592 | 2 | 9 | 18 | 168 | 104 | 3 | 304 | 896 |
| Dela., Lacka. and Western R. R. Co., | 2 | 5 | 204 | 205 | 81 | 31 | 74 | 602 | 2 | 11 | 26 | 146 | 100 | 2 | 287 | 889 |
| Forty Fort Coal Company, | 5 | 3 | 169 | 135 | 78 | 24 | 46 | 460 | 2 | 10 | 18 | 55 | 59 | 4 | 148 | 608 |
| Miscellaneous coal companies, | 43 | 31 | 2,096 | 1,643 | 815 | 209 | 657 | 5,494 | 29 | 114 | 211 | 1,638 | 847 | 73 | 2,912 | 8,406 |
| Total, | 84 | 82 | 4,567 | 3,820 | 1,698 | 446 | 1,334 | 12,031 | 50 | 225 | 483 | 3,208 | 1 816 | 113 | 5,895 | 17,926 |

*Idle since May.
†This colliery was in operation only a few weeks.

TABLE No. 4.—List of Fatal Accidents that Occurred in and about the Mines of the Third Anthracite District, for the Year ending December 31, 1897.

| Date of accident. | Name of Person Injured. | Age. | Married or single. | Number of orphans. | Name of Colliery. | Location—County. | Date of investigation. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Jan. 7, | Paul O. Real, | 33 | S. | .... | Fernwood tunnel, | Pittston township, | Jan. 8, | Killed by fall of roof. |
| 7, | Leaport Stayiate, | 28 | S. | .... | Fernwood tunnel, | Pittston township, | 8, | Killed by fall of roof. |
| 11, | Andrew Bushock, | 20 | S. | .... | Exeter shaft, | Exeter, | 12, | Killed by having been caught between car and gate on head of shaft. |
| 18, | Thos. Trynoskey, | 17 | S. | .... | Phoenix shaft, | Duryea, | 19, | Killed by falling in front of a car. |
| 20, | Fred. Hubell, | 43 | M. | 8 | Delaware shaft, | Mill Creek, | 21, | Fatally injured by fall of slate; died February 3. |
| 21, | Peter Courtright, | 34 | M. | 2 | No. 4 shaft, | Pittston, | 26, | Killed; struck on head by block of wood from tower. |
| 23, | William Pack, | 56 | M. | 2 | East Boston shaft, | Luzerne, | 25, | Fatally injured by fall of coal; died January 25. |
| Feb. 10, | Martin Smith, | 40 | S. | .... | Clear Spring shaft, | Pittston, | Feb. 11, | Killed by fall of rock. |
| 17, | Andrew Breshcar, | 27 | M. | 3 | Harry E. shaft, | Forty Fort, | 18, | Killed by fall of rock. |
| Mar. 10, | John Murdock, | 23 | S. | .... | Harry E. shaft, | Forty Fort, | Mar. 11, | Killed by fall of rock. |
| Apr. 1, | William Purick, | 29 | M. | 2 | Avoca shaft, | Avoca, | Apr. 2, | These were brothers, and while tamping a hole the powder exploded, killing both. |
| 1, | Michael Purick, | 26 | S. | .... | Avoca shaft, | Avoca, | 2, | |
| 13, | Walter McLaughlin, | 35 | S. | .... | Black Diamond shaft, | Luzerne, | 15, | Fatally injured by fall of coal; died same day. |
| 14, | Joseph Sedlinsky, | 50 | M. | 1 | Heidelburg No. 1 shaft, | Avoca, | 14, | Killed while getting off the cage; some person not known having signaled the engineer to hoist. |
| 22, | William Thomas, | 57 | M. | 1 | Delaware shaft, | Mill Creek, | 24, | Killed by fall of top coal. |
| 23, | Joseph McHale, | 15 | S. | .... | Barnum No. 3 shaft, | Marcy township, | 26, | Fatally burned; he spilled oil on his clothing and took his lamp to dry them and took fire; died next day. |
| May 4, | Joseph Smith, | 19 | S. | .... | Laflin breaker, | Laflin, | May 7, | Fatally injured by having been struck by car brake; died May 18. |
| 6, | Thomas Davis, | 18 | S. | .... | Laurel Run slope, | Parsons, | 18, | Fatally injured; fell in front of cars; died May 18. |
| 14, | John Shular, | 30 | M. | .... | Ridgewood slope, | Ridgewood, | 19, | Killed by fall of rock. |
| 20, | Henry White, | 31 | M. | .... | Laflin shaft, | Laflin, | 22, | Killed by fall of rock. |
| 25, | Anatesta Pep, | 50 | M. | 4 | Fernwood shaft, | Pittston township, | 26, | Killed by blast fired through cross cut. |
| June 12, | Martin Noviskie, | 20 | S. | .... | Phoenix shaft, | Duryea, | June 14, | Killed by an explosion of gas in old workings. |
| July 1, | Thomas Carden, Jr., | 21 | S. | .... | No. 10 shaft, | Hughestown, | July 8, | Fatally injured by fall of rock; died July 4. |
| 1, | Joseph Paul, | 18 | S. | .... | Elmwood shaft, | Pittston township, | 2, | Fatally crushed; fell in front of cars; died July 14. |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2, | John Cloonan, | 42 | M. | 4 | Phoenix shaft, | Duryea, | | 3, | Killed by fall of rock in chamber. |
| | 8, | Thomas E. Lewis,, | 31 | S. | .... | Louise tunnel, | Luzerne, | | 9, | Killed by fall of top rock. |
| | 20, | Martin Regin, | 59 | M. | 5 | Barnum shaft, | Marcy township, | | 21, | Fatally injured by fall of roof; died July 21. |
| | 21, | John H. Joyce, | 34 | M. | 3 | Heidelburg slope, | Avoca, | | 22, | Killed by fall of roof on heading road. |
| | 22, | John Tootis, | 28 | M. | 2 | Babylon shaft, | Duryea, | | 23, | Fatally injured by fall of rock. |
| Aug. | 6, | John Healey, | 16 | S. | .... | No. 10 shaft, | Hughestown, | Aug. | 7, | Killed by falling under trip of cars. |
| | 10, | Edward Parry, | 27 | M. | 3 | Ridgewood slope, | Ridgewood, | | 12, | Killed by a blast he thought had missed. |
| | 16, | Thomas Walsh, | 25 | S. | ... | No. 9 shaft, | Hughestown, | | 17, | Killed by fall of rider coal. |
| | 17, | Michael Velanis, | 21 | S. | .... | Langcliffe shaft, | Avoca, | | 18, | Killed by a blast fired through a pillar. |
| | 19, | Robert Williams, | 37 | M. | 4 | Oakwood shaft, | Plains township, | | 20, | Killed by coal falling on him. |
| Sept. | 1, | John Bollock, | 45 | M. | 3 | Exeter shaft, | Exeter, | Sept. | 2, | Killed by fall of rider coal. |
| | 7, | John Brennan, | 46 | M. | 7 | Phoenix shaft, | Duryea, | | 8, | Brennan was killed and Wedik was fatally injured by fall of rock and died in a few hours. |
| | 7, | Peter Wedik, | 44 | M. | 4 | Phoenix shaft, | Duryea, | | 8, | |
| | 8, | Leonaldo Pealose, | 30 | M. | 1 | Butler shaft, | Pittston township, | | 9, | Killed by fall of rock. |
| | 20, | Ignatius Galligher, | 18 | S. | .... | Babylon breaker, | Duryea, | | 21, | Killed by having been caught between bumpers of cars. |
| | 23, | Thomas Urban, | 35 | M. | 3 | Mount Lookout shaft, | Wyoming, | | 25, | Killed by a premature blast. |
| | 30, | Evan Pugh, | 43 | M. | 6 | Clear Spring shaft, | Pittston, | Nov. | 1, | Killed by a piece of rock falling on his head. |
| Oct. | 2, | Michael Dowitz, | 33 | M. | .... | Pettebone shaft, | Kingston township, | Oct. | 4, | Fatally burned by an explosion of gas; died, October 9. |
| | 2, | David George, | 52 | M. | .... | Pettebone shaft, | Kingston township, | | 13, | Fatally burned by the above explosion; died October 13. |
| | 5, | Stephen Ramanko, | 23 | S. | .... | Langcliffe tunnel, | Avoca, | | 7, | Killed by fall of rock. |
| | 6, | James Glynn, | 40 | M. | 5 | Harry E. shaft, | Forty Fort, | | 8, | Fatally injured by cars while riding up slope; died next day. |
| | 6, | Stephen Gura, | 40 | M. | 5 | Harry E. shaft, | Forty Fort, | | 8, | Killed by fall of top rock. |
| | 18, | John Adamshick, | 25 | S. | .... | Harry E. shaft, | Forty Fort, | | 19, | Killed by an explosion of gas. |
| | 23, | John Taylor, | 51 | M. | 1 | Laurel Run slope, | Parsons, | | 24, | Killed while going back to blast, thinking it had missed. |
| | 26, | John Corcoran, | 44 | M. | 4 | Henry shaft, | Plains township, | | 27, | Fatally injured by fall of rock; died same day. |
| | 28, | Patrick McDonald, | 40 | M. | 2 | Babylon shaft, | Duryea, | | 29, | Killed by fall of rock. |
| | 29, | James Doran, | 34 | M. | 2 | Exeter shaft, | Exeter, | | 29, | Killed by falling down air shaft. |
| | 30, | Peter Faliszanski, | 26 | M. | .... | Exeter shaft, | Exeter, | Nov. | 1, | Fatally injured by premature blast; died next day. |
| Nov. | 3, | George Raustine, | 35 | M. | 3 | Mount Lookout shaft, | Wyoming, | | 4, | Killed by fall of rock. |
| | 17, | Alex. Buchefsky, | 35 | M. | 2 | Exeter shaft, | Exeter, | | 19, | Fatally burned by powder; died November 30. |
| | 30, | Peter Chesharvage, | 32 | S. | .... | Babylon shaft, | Duryea, | Dec. | 2, | Killed by fall of rock. |
| Dec. | 4, | Anthony Pupco, | 26 | S. | ... | Delaware shaft, | Mill Creek, | | 6, | Killed by fall of rider coal. |
| | 6, | Adam Wilkowski, | 19 | S. | .... | Clear Spring shaft, | Pittston, | | 7, | Fatally burned by gas; died December 24, 1897. |
| | 8, | Thomas J. Davis, | 69 | M. | 6 | Oakwood shaft, | Plains township, | | 9, | Killed; struck by car coming out of chamber. |
| | 10, | Patrick Maloney, | 35 | S. | .... | Ridgewood, outside, | Plains township, | | 13, | Fatally injured by ash car; died same day. |
| | 11, | Stephen Gutsock, | 33 | S. | .... | Pine Ridge shaft, | Miners' Mills, | | 14, | Killed by fall of top rock. |
| | 16, | Peter Mutson, | 38 | M. | 1 | East Boston shaft, | Luzerne, | | 17, | Killed by fall of rock. |
| | 17, | Thomas Cunard, | 39 | W. | 5 | Clear Spring shaft, | Pittston, | | 18, | Fatally injured by trip of cars on slope; died same day. |
| | 30, | Thomas Butts, | 51 | M. | 6 | Delaware shaft, | Mill Creek, | | 31, | Killed by fall of rock. |

TABLE No. 5.—List of Non-Fatal Accidents that Occurred in and about the Mines of the Third Anthracite District, for the Year ending December 31, 1897.

| Date of Accident. | | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Jan. | 7. | George Ballish, | Driver, | 24 | S. | Mt. Lookout breaker, | Wyoming, | Hip fractured; fell under culm car. |
| | 18. | John Good, | Laborer, | 28 | M. | Exeter shaft, | Exeter, | Ribs fractured by rock falling on him. |
| | 21. | Jas. Griffin, | Slate picker, | 14 | S. | East Boston breaker, | Kingston township, | Leg broken at noon hour while playing about cars. |
| | 25. | Michael Finzer, | Miner, | 40 | S. | Henry shaft, | Plains township, | Leg and ribs broken by fall of rock. |
| | 26. | John Hall, | Car runner, | 25 | M. | Babylon shaft, | Duryea township, | Leg squeezed while riding on car. |
| Feb. | 4. | Michael Kychek, | Company man, | 24 | S. | Langcliffe shaft, | Avoca, | Leg bruised by having been caught between car and door frame. |
| | 4. | Delasro Musro, | Laborer, | 31 | S. | Mt. Lookout shaft, | Wyoming, | Seriously bruised and cut by premature blast. |
| | 6. | Walter Kerr, | Miner, | 50 | M. | Katy Did slope, | Avoca, | Leg broken; prop fell on him. |
| | 10. | Ignas Slovohink, | Miner, | 30 | M. | East Boston shaft, | Kingston township, | Burned on face and hand by gas. |
| | 24. | Fred. Glace, | Driver, | 24 | S. | Mt. Lookout shaft, | Wyoming, | Kicked on breast by mule. |
| Mar. | 1. | Ignatus Horazaige, | Miner, | 36 | S. | Prospect shaft, | Plains township, | Leg broken by fall of fire clay. |
| | 2. | Patrick Delaney, | Driver, | 18 | S. | Miners' drift, | Jenkins township, | Bruised by having been caught between car and rib. |
| | 5. | Michael English, | Door boy, | 15 | S. | No. 9 shaft, | Hughestown, | Head cut; prop fell on him. |
| | 5. | Joseph Casey, | Laborer, | 24 | S. | Twin shaft, | Pittston, | Face and arm burned by powder. |
| | 8. | Frank Carlin, | Miner, | 40 | M. | No. 1 Barnum shaft, | Marcy township, | Bruised by fall of soap stone. |
| | 10. | Joseph Golia, | Miner, | 45 | M. | Phoenix shaft, | Duryea, | Ribs fractured by premature blast. |
| | 11. | Mike Curley, | Laborer, | 44 | S. | Laws' shaft, | Pittston township, | Head cut by coal falling from rib on him. |
| | 13. | Wm. Pearce, | Head man, | 19 | S. | Stevens breaker, | Exeter, | Severely bruised; fell under cars. |
| | 22. | Wm. Mulrooney, | Driver, | 15 | S. | No. 5 shaft, | Jenkins township, | Squeezed between car and rib. |
| | 24. | Joseph Corasha, | Laborer, | 24 | S. | Phoenix shaft, | Duryea, | Skull and jaw fractured by fall of rock. |
| | 25. | Joseph Gablick, | Laborer, | 27 | S. | Mt. Lookout shaft, | Wyoming, | Thigh broken by fall of rock. |
| | 25. | Emanuel Devorchie, | Miner, | 32 | M. | Babylon shaft, | Duryea, | Burned by powder he was handling. |
| Apr. | 1. | Stephen Mequite, | Miner, | 28 | S. | Mt. Lookout shaft, | Wyoming, | Burned by powder while charging hole. |
| | 3. | Mike Yaneskie, | Miner, | 30 | M. | Mt. Lookout shaft, | Wyoming, | Face and hand cut; he went back to blast he thought had missed. |
| | 6. | Mike Gocella, | Miner, | 30 | S. | Chapman shaft, | Pittston township, | Squeezed between car and pillar. |
| | 6. | Andrew Kovalick, | Laborer, | 42 | M. | Prospect shaft, | Plains township, | Bruised between car and rib. |
| | 9. | Anthony Petrick, | Miner, | 31 | S. | East Boston shaft, | Kingston township, | Leg broken; fell while running. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 14, | Anthony Dugan, | Laborer, | 33 | M. | Clear Spring shaft, | Pittston township, | Bruised by fall of rock. |
| | 16, | William Bevan, | Pump runner, | 35 | M. | Mt. Lookout shaft, | Wyoming, | Painfully scalded by steam. |
| | 21, | Mike Clark, | Footman, | 38 | S. | Pine Ridge shaft, | Miners' Mills, | Fingers crushed by car wheels. |
| | 22, | John Melvin, | Laborer, | 21 | M. | No. 6 shaft, | Jenkins township, | Bruised by car tipping over on him. |
| May | 3, | Anthony Klimonick, | Miner, | 32 | M. | Stevens slope, | Exeter, | Head and face cut by fall of top coal. |
| | 7, | John Menchesky, | Laborer, | 40 | M. | Clear Spring shaft, | Pittston, | Severely bruised by fall of rock. |
| | 7, | Joseph Pilkins, | Miner, | 32 | M. | Phoenix shaft, | Duryea, | Nose broken by having been struck by piece of coal. |
| | 8, | Martin McGlinn, | Miner, | 30 | M. | No. 6 shaft, | Jenkins township, | Burned slightly on face by gas. |
| | 8, | Joseph Leonard, | Laborer, | 22 | S. | No. 6 shaft, | Jenkins township, | |
| | 14, | Jas. Bagnoe, | Driver, | 17 | S. | Pettebone shaft, | Kingston township, | Leg bruised by having been squeezed between car bumpers. |
| | 22, | Wm. Adams, | Driver, | 26 | M. | Exeter, outside, | Exeter, | Foot bruised by having been caught in steam shovel. |
| | 24, | Andrew Lessley, | Laborer, | 45 | M. | Pettebone shaft, | Kingston township, | Foot bruised by fall of coal. |
| | 26, | Wm. H. Jones, | Miner, | 52 | M. | Laurel Run slope, | Parsons, | Leg and hand injured by fall of coal. |
| | 29, | Chas. Elliott, | Runner, | 26 | M. | Black Diamond shaft, | Luzerne, | Fingers crushed by car wheel. |
| June | 2, | Anthony Gasaskas, | Laborer, | 28 | M. | Stevens shaft, | Exeter, | Head cut and bruised by fall of rock. |
| | 8, | Mike Missavage, | Miner, | 40 | M. | Wyoming shaft, | Plains township, | Leg bruised by fall of coal. |
| | 9, | Frank Sackoff, | Miner, | 28 | S. | Harry E. shaft, | Forty Fort, | Burned by powder. |
| | 9, | Andrew Dravie, | Miner, | 30 | M. | Exeter shaft, | Exeter, | Severly bruised by fall of rider coal. |
| | 9, | John Hoshinski, | Laborer, | 39 | S. | Exeter shaft, | Exeter, | |
| | 10, | Geo. Howells, | Driver, | 16 | S. | Stevens slope, | Exeter, | Toes crushed; foot caught in frog. |
| | 14, | Warren Ruth, | Driver, | 17 | S. | Black Diamond shaft, | Luzerne, | Leg broken by prop rolling on him. |
| | 14, | John Rockwood, | Laborer, | 25 | S. | Pettebone shaft, | Kingston township, | Face and hands burned by gas. |
| | 17, | George Bradley, | Miner, | 31 | M. | Hoyte shaft, | Jenkins township, | Cut and bruised by premature blast. |
| | 17, | Wm. Potsego, | Laborer, | 24 | M. | Hoyte shaft, | Jenkins township, | |
| | 17, | Serratare Pablo, | Miner, | 27 | S. | Crescent drift, | Jenkins township, | Back bruised by fall of rock. |
| | 17, | John Yawiskie, | Laborer, | 33 | M. | Midvale slope, | Plains township, | Back injured by fall of coal. |
| | 25, | George Gastus, | Miner, | 35 | S. | Exeter shaft, | Exeter, | Leg broken by fall of rock. |
| | 28, | Mike Judge, | Laborer, | 35 | M. | Pettebone shaft, | Kingston township, | Foot bruised by fall of coal. |
| July | 1, | Jas. Tregasker, | Plane runner, | 22 | S. | Delaware shaft, | Mill Creek, | Leg squeezed between car bumpers. |
| | 8, | Andrew Radousky, | Laborer, | 45 | S. | Crescent drift, | Jenkins township, | Leg broken by fall of rock. |
| | 8, | Martin Sedea, | Slate picker, | 19 | S. | Crescent breaker, | Jenkins township, | Chin bruised by having been struck by a rail. |
| | 9, | Joseph Golden, | Miner, | 33 | M. | Langcliffe shaft, | Avoca, | Leg broken by rock he was taking down. |
| | 9, | Joseph Kamashes, | Laborer, | 25 | S. | Twin shaft, | Pittston, | Foot crushed under car wheel. |
| | 14, | Daniel McHugh, | Runner, | 21 | S. | Phoenix shaft, | Duryea, | Skull fractured while spragging a car. |
| | 16, | John Teeber, | Laborer, | 20 | S. | Butler shaft, | Pittston township, | Leg bruised between mine cars. |
| | 19, | Thomas Cosgrove, | Laborer, | 19 | S. | No. 1 shaft, | Hughestown, | Leg broken by fall of rock. |
| | 20, | Charles Dobbie, | Laborer, | 22 | S. | Barnum shaft, | Marcy township, | Injured by fall of rock. |
| | 20, | Thomas Dobbie, | Laborer, | 19 | S. | Barnum shaft, | Marcy township, | |
| | 21, | Peter May, | Driver, | 19 | S. | Black Diamond shaft, | Luzerne, | Small bone of leg broken between cars. |
| | 21, | James Higgins, | Laborer, | 24 | S. | Butler shaft, | Pittston township, | Finger cut off by car door falling on it. |
| | 22, | William Wancosky, | Laborer, | 40 | M. | Babylon shaft, | Duryea, | Painfully injured by fall of rock. |
| | 22, | Frank Ballus, | | | S. | Mill Hollow shaft, | Luzerne, | Squeezed between cars. |
| | 22, | John Crawford, | Laborer, | 17 | S. | Exeter breaker, | Exeter, | Arm broken while oiling machinery. |
| | 29, | Thomas Sandow, | Miner, | 48 | M. | Pettebone shaft, | Kingston township, | Leg broken by coal he was taking down. |
| Aug. | 2, | Francis Dennis, | Miner, | 34 | M. | Stevens slope, | Exeter, | Back bruised by fall of rock. |
| | 4. | Charles Nallon, | Driver, | 17 | S. | No. 9 shaft, | Hughestown, | Painfully squeezed between cars. |
| | 5. | Mike Stofko, | Miner, | 37 | M. | Maltby shaft, | Maltby, | Leg broken by fall of roof. |
| | 5. | William Kemensky, | Laborer, | 19 | S. | Prospect shaft, | Plains township, | Leg broken by coal falling from pillar. |
| | 6, | John Leonard, | Track layer, | 34 | M. | Schooley shaft, | Exeter, | Severly bruised by fall of rock. |

TABLE No. 5.—Continued.

| Date of Accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Aug. 9. | Ray Griffith, | Slate picker, | 14 | S. | Mill Hollow breaker, | Luzerne, | Arm broken by falling down steps in breaker. |
| 10. | John Callahan, | Miner, | 54 | M. | No. 7 shaft, | Jenkins township, | Arm broken and side bruised by fall of rock. |
| 13. | Alex. Brannigan, | Driver, | 32 | S. | Midvale slope, | Plains township, | Shoulder broken by having been squeezed between mule and car. |
| 13. | Martin Healey, | Runner, | 21 | S. | Langcliffe breaker, | Avoca, | Hand bruised by car under breaker. |
| 13. | Burt Bath, | Driver, | 19 | S. | Phoenix shaft, | Duryea, | Leg and arm broken; fell under trip of cars. |
| 14. | Mike Stove, | Driver, | 30 | M. | Harry E. shaft, | Forty Fort, | Leg broken by having been struck by a car. |
| 18. | Anthony Orbon, | Laborer, | 24 | M. | Ravine shaft, | Pittston, | Leg broken by fall of bony coal. |
| 21. | Wm. Tresidder, | Charge man, | 35 | M. | Forty Fort shaft, | Forty Fort, | Leg broken and ankle dislocated by fall of rock. |
| 23. | Mike O'Donnell, | Door boy, | 14 | S. | Laws' shaft, | Pittston township, | Leg broken; crushed between mule and car. |
| 23. | James Burns, | Miner, | 27 | M. | Katy Did drift, | Avoca, | Leg cut and head bruised by fall of coal. |
| 24. | Anthony Galinskie, | Miner, | 23 | S. | Schooley shaft, | Exeter, | Leg broken by premature blast. |
| 25. | Richard Evans, | Laborer, | 27 | S. | Pettebone shaft, | Kingston township, | Neck and hands burned by gas. |
| 31. | John Farrell, | Runner, | 19 | S. | Babylon shaft, | Duryea, | Leg and arm bruised by falling under car. |
| Sept. 2. | Charles Harmour, | Laborer, | 29 | M. | Pettebone shaft, | Kingston township, | Back bruised by fall of rock. |
| 3. | Mike Narouka, | Laborer, | 43 | S. | East Boston shaft, | Kingston township, | Ankle dislocated by fall of rock. |
| 3. | John Flaherty, | Miner, | 55 | M. | Ravine shaft, | Pittston, | Painfully bruised by fall of rock. |
| 4. | Paul Dubresh, | Laborer, | 30 | M. | Harry E. shaft, | Forty Fort, | Back bruised by fall of rock. |
| 6. | James O. Boyle, | Track layer, | 40 | M. | Clear Spring shaft, | Pittston, | Leg broken by having been caught between car and pillar. |
| 7. | Jerry Hallstead, | Driver, | 15 | S. | Ravine shaft, | Pittston, | Head painfully injured by kick from a mule. |
| 14. | George H. Jones, | Contractor, | 50 | M. | Ravine shaft, | Pittston, | Painfully burned by gas. |
| 14. | Joseph Lowndasky, | Miner, | 34 | M. | Babylon shaft, | Duryea, | Head and knee bruised by fall of rock. |
| 14. | August Williamsky, | Laborer, | 38 | M. | Babylon shaft, | Duryea, | Seriously crushed by coal falling upon him from a pillar. |
| 15. | John Paul, | Driver, | 20 | S. | Seneca shaft, | Pittston, | Head and shoulder bruised; fell off car. |
| 15. | Mike McLaughlin, | Miner, | 39 | M. | Seneca shaft, | Pittston, | Head and breast cut and bruised by premature blast. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 24, | George Jacob, | Laborer, | 31 | M. | Black Diamond shaft, | Luzerne, | Leg broken and back bruised by fall of rock. |
| | 25, | Mike Dukhen, | Laborer, | 40 | S. | East Boston shaft, | Kingston township, | Thigh painfully cut by coal. |
| | 25, | Jas. Harrington, | Miner, | 57 | M. | East Boston shaft, | Kingston township, | Head and shoulder cut by fall of rock. |
| | 28, | Mike Brennan, | Laborer, | 35 | M. | No. 14 shaft, | Jenkins township, | Face and hands burned by gas. |
| Oct. | 1, | Mike Malia, | Laborer, | 23 | S. | No. 11 shaft, | Jenkins township, | Leg broken by coal sliding down pitch on him. |
| | 6, | Thomas Gascovick, | Laborer, | 34 | S. | East Boston shaft, | Kingston township, | Head cut severely by rock falling on him. |
| | 8, | Thomas Queeney, | Laborer, | 24 | S. | Laws' shaft, | Pittston township, | Side painfully cut by a piece of rock. |
| | 8, | Mike Peters, | Miner, | 22 | S. | Oakwood shaft, | Plains township, | Severely burned by gas; the fire boss had ordered them to keep out until he put up a brattice. |
| | 8, | Mike Poveshaw, | Laborer, | 28 | S. | Oakwood shaft, | Plains township, | |
| | 14, | William Titley, | Miner, | 40 | S. | Butler shaft, | Pittston township, | Painfully injured by fall of rock. |
| | 18, | Thomas Matches, | Laborer, | 30 | S. | Harry E. shaft, | Forty Fort, | Seriously burned by gas. |
| | 20, | Thomas Grodvall, | Laborer, | 41 | M. | Stevens shaft, | Exeter, | Foot painfully bruised by coal falling on it. |
| | 21, | John Thomas, | Company miner, | 43 | M. | Hallstead shaft, | Duryea, | Skull fractured while putting up timber by rock falling on him. |
| | 23, | John Sulvoskie, | Miner, | 38 | M. | Henry shaft, | Plains township, | Collar bone broken and cut on face by fall of rock. |
| | 30, | Thomas Nicholson, | Driver, | 16 | S. | Clear Spring shaft, | Pittston, | Severely injured by having been squeezed between cars. |
| Nov. | 2, | Stanley Kaslavish, | Miner, | 30 | S. | Laflin shaft, | Laflin, | Painfully burned by gas. |
| | 3, | John O. Boyle, | Driver, | 15 | S. | Barnum shaft, | Marcy township, | Leg broken; fell in front of cars. |
| | 6, | John A. Rother, | Brattice man, | 40 | M. | Exeter shaft, | Exeter, | Painfully bruised by having been dragged by cars. |
| | 9, | John White, | Door boy, | 15 | S. | Babylon shaft, | Duryea, | Ankle broken by having been struck by chain on car. |
| | 11, | Jacob Savage, | Miner, | 35 | M. | Henry shaft, | Plains township, | Face and hands painfully burned by gas. |
| | 12, | Silas Prichard, | Door boy, | 15 | S. | Midvale slope, | Plains township, | Three fingers cut off while opening latch for cars. |
| | 15, | Eugene Kearns, | Driver, | 16 | S. | Barnum shaft, | Marcy township, | Nose broken and face cut by having been kicked by a mule. |
| | 15, | John Wilkinson, | Driver, | 19 | S. | Pettebone shaft, | Kingston township, | Face and hands burned by gas. |
| | 17, | Stephen Buchefisky, | Laborer, | 37 | M. | Exeter shaft, | Exeter, | Painfully burned by powder. |
| | 17, | John Wega, | Miner, | 29 | M. | Hallstead shaft, | Duryea, | Leg broken by rock sliding from gob on him. |
| | 17, | George Matchey, | Runner, | 24 | S. | East Boston shaft, | Kingston township, | Leg bruised by car jumping the track on him. |
| | 19, | Leapold Shang, | Miner, | 58 | M. | East Boston shaft, | Kingston township, | Painfully bruised by having been squeezed between car and gob. |
| | 20, | Joseph Kirshenosky, | Miner, | 45 | M. | Prospect shaft, | Plains township, | Burned on face and hands by gas. |
| | 23, | Jacob Bright, | Laborer, | 35 | M. | Mount Lookout shaft, | Wyoming, | Hip cut and bruised by fall of rock. |
| | 23, | Sylvester Demick, | Miner, | 40 | M. | Schooley shaft, | Exeter, | Leg broken by premature blast. |
| | 27, | Arthur Runt, | Runner, | 38 | M. | East Boston shaft, | Kingston township, | Leg broken by car jumping track on him. |
| Dec. | 3, | Anthony Carriauis, | Miner, | 35 | M. | Harry E. shaft, | Forty Fort, | Both legs broken while barring down coal. |
| | 6, | Charles Duncarage, | Driver, | 16 | S. | Clear Spring shaft, | Pittston, | Severely burned by an explosion of gas. |
| | 6, | Alex. Dusbroskie, | Helper, | 15 | S. | Clear Spring shaft, | Pittston, | |
| | 7, | Mike Socotsky, | Miner, | 25 | S. | Phoenix shaft, | Duryea, | Arm broken by coal falling on him. |
| | 8, | John Cawley, | Runner, | 26 | S. | Buttler tunnel, | Pittston township, | Leg painfully squeezed between car bumpers. |

TABLE No. 5.—Continued.

| Date of Accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Dec. 11, | William Fuller, ..... | Barn boss, ..... | 38 | M. | No. 14 outside, ..... | Jenkins township, ..... | Collar bone broken by having been struck by a car. |
| 11, | James Gallagher, ..... | Miner, ..... | 38 | M. | No. 14 outside, ..... | Jenkins township, ..... | Foot and ankle bruised between car bumpers. |
| 13, | Mike Dillan, ..... | Laborer, ..... | 23 | M. | No. 14 drift, ..... | Jenkins township, ..... | Painfully bruised by fall of rock. |
| 14, | John Kelley, ..... | Miner, ..... | 36 | M. | Heidelburg shaft, ..... | Pittston township, ..... | Neck and shoulder bruised by fall of rock. |
| 20 | Wm. Hope, ..... | Driver, ..... | 15 | S. | Hallstead, outside, ..... | Duryea, ..... | Arm broken by having been thrown from a mule. |
| 20, | Joseph Anderson, ..... | Driver, ..... | 17 | S. | Black Diamond shaft, ..... | Luzerne, ..... | Hip bruised: fell in front of cars. |
| 27, | Thomas Golden, ..... | Driver, ..... | 17 | S. | No. 9 shaft, ..... | Hughestown, ..... | Foot painfully bruised by rock falling on it. |
| 28, | Mark King, ..... | Miner, ..... | 35 | M. | Wyoming shaft, ..... | Plains township, ..... | Head and hand cut and bruised by fall of rock. |
| 28, | Frank Lodinskie, ..... | Miner, ..... | 35 | S. | Delaware shaft, ..... | Mill Creek, ..... | Both legs broken by fall of rock. |

# Fourth Anthracite District.

(LUZERNE COUNTY.)

Office of Inspector of Mines, Wilkes-Barre, Pa., Feb. 21, 1898.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor of presenting herewith my report as Inspector of Mines for the Fourth anthracite district for the year 1897.

Beside the usual tables and statistical matter relating to the mines and mine accidents, it has several brief articles bearing upon the condition of the mines.

The total quantity of coal mined was 7,457,418 tons. The number of fatal accidents was 60, making the quantity of coal produced per life lost 124,290 tons, being a greater quantity than was ever before produced per life lost in this district. Before the law was put in force the quantity of coal produced per life lost was from 50,000 to 60,000 tons, and one person was fatally injured to from 180 to 190 persons employed, though at that time the dangers of coal mining were not to be compared with the dangers at the present time.

Perusal of tables B, C, and D shows that in the year 1871 the first year of the anthracite mine law there was one life lost for 186 employes, and a production of 56,000 tons per life lost. The number of persons employed was 9,870. In the first decade under the mine law, one life was lost for 263 employes, and 87,409 tons of coal were produced per life lost. In the second decade, one life was lost for 249 persons employed, and 91,507 tons of coal were produced per life lost. In the last seven years one life was lost to 297 persons employed, and 98,646 tons were produced per life lost. The total number of employes for last year was 25,650, against 9,870 in the year when the mine inspection began. The quantity of coal produced in 1897 was 7,457,418 tons in an average of 134 days, against 3,000,000 tons in the first year of mine inspection in perhaps double the time, or 268 days. It is not fair to compare the accidents in mines with the number of persons employed. In the latter part of the second decade in this district, an unusual number of men were employed opening new mines and driving tunnels who were not producing coal, and it is not just that the accidents should be attributed to coal mining. The purpose of coal mining is to produce

coal, and the accidents should be rated with the production of coal. To compare the accidents of coal mining with the accidents of railroads computed according to railroad methods is unjust to coal mining, although the records are in the favor of the management of coal mining. The railroads have only one class of accidents, those incident to the transmission of trains. To do this work they are not cramped for room, for they are in the open air and have day light and what a miner would consider an extraordinarily good light at night.

In the mines it is entirely different. The transmission of the mine cars has to be done through narrow passages where the space is rarely over three feet wide outside of the tracks and is frequently too low for a man to raise his head. Dangerous roof has to be timbered and re-timbered. Floors are heaving, throwing tracks out of order. Ventilation has to be provided. Noxious and explosive gases are unceasingly emitted, and enormous quantities of explosives have to be handled and consumed. The safety of every man is dependent on the unfailing speed of machinery and that no man or boy makes a mistake or a mis-step. The employes of a railroad are selected with care, while very little regard as to the fitness of a person is paid when persons are employed for the mines. The law regulating the qualification of miners is worse than a farce. There never was such an incompetent class of miners employed as there is now. This has been reported by the mine Inspectors several times, and they are in the best position to know. It would be as appropriate to compare the risks of clerical office work with the risk of railroading as to compare the risk of railroading with that of coal mining in this region, and no one who knows anything about it would attempt it. I would respectfully call attention to the fact that this district has two and a half times the number of employes, and is capable of producing three times the quantity of coal now, more than it did when mine inspection began, and the inspection is done still by one man only. The risk of mining is certainly many times greater. Owing to the complications attending anthracite mining, the manifold pitches and conditions of the coal in the earth, the great thickness and number of the coal seams, the enormous quantity of explosives required in its extraction, and the great quantity of explosive gases evolved, it is recognized as an extremely difficult region to mine. Notwithstanding this, the Bureau of Mines was created in the Department of Internal Affairs with no representation whatever in its organization from the anthracite region. If this Bureau was created with a sincere desire to assist the Inspectors in the enforcement of the law and to reduce the number of accidents, it should be considered that it cannot be done by keeping them occupied as they are kept now, at useless clerical work. An examination

of records at the offices of the Inspectors would show infinitely better whether the inspection work is done or not. A number of useless offices can be created and kept busy reporting to one another with fully as much good as the work exacted by the Bureau of Mines under the instruction of the Department of Internal Affairs at present. It is right that we should be supported and not handicapped in work so important.

Yours respectfully,

G. M. WILLIAMS,

Inspector of Mines, Fourth Anthracite District.

Total Production of Coal in Tons During the Year 1897.

| | |
|---|---|
| Lehigh and Wilkes-Barre Coal Company, | 1,849,401.00 |
| Delaware and Hudson Canal Company, | 1,141,188.10 |
| Susquehanna Coal Company, | 1,291,352.07 |
| Kingston Coal Company, | 731,517.09 |
| Delaware, Lackawanna and Western Railroad Company, | 499,951.05 |
| Lehigh Valley Coal Company, | 349,366.16 |
| Red Ash Coal Company, | 209,958.12 |
| Parrish Coal Company, | 293,586.00 |
| Alden Coal Company, | 230,000.18 |
| Plymouth Coal Company, | 185,560.03 |
| West End Coal Company, | 121,830.00 |
| Hillman Vein Coal Company, | 65,889.17 |
| A. J. Davis, Warrior Run colliery, | 172,057.18 |
| Crescent Coal Mining Company, | 75,521.11 |
| Melville Coal Company, | 71,078.10 |
| Reynolds & Moyer Coal Company, | 110,524.09 |
| Wyoming Coal Company Washery, | 58,630.08 |
| Total, | 7,457,418.13 |

The total production was made up as follows:

| | Tons. |
|---|---|
| Shipped by railroad to market, | 6,565,852.11 |
| Sold at the mines for local use, | 226,387.13 |
| Consumed to generate steam (estimated), | 665,178.09 |
| Total, | 7,457,418.13 |

TABLE A.—Showing Number of Lives Lost, Tons of Coal Produced per Life Lost and per Person Injured, Number of Employes and Number of Employes per Life Lost and per Person Injured.

| Names of the Operators. | Number of lives lost. | Tons of coal produced per life lost. | Number of persons seriously injured. | Tons of coal produced per person seriously injured. | Number of persons employed. | Number of employes per life lost. | Number of employes per person injured. |
|---|---|---|---|---|---|---|---|
| Lehigh and Wilkes-Barre Coal Company, | 11 | 168,127 | 67 | 27,603 | 6,420 | 581 | 95 |
| Delaware and Hudson Canal Company, | 11 | 103,744 | 19 | 60,062 | 3,964 | 360 | 208 |
| Susquehanna Coal Company, | 11 | 117,395 | 55 | 23,497 | 4,250 | 386 | 77 |
| Kingston Coal Company, | 5 | 146,303 | 19 | 38,500 | 2,358 | 471 | 124 |
| Delaware, Lackawanna and Western Railroad Company, | 5 | 99,990 | 37 | 13,512 | 1,941 | 388 | 52 |
| Lehigh Valley Coal Company, | 4 | 87,341 | 7 | 49,909 | 1,361 | 340 | 194 |
| Red Ash Coal Company,* | ..... | ..... | 4 | 52,489 | 732 | ..... | 183 |
| Parrish Coal Company, | 6 | 48,931 | 13 | 22,583 | 1,172 | 195 | 90 |
| Alden Coal Company, | 3 | 76,666 | 21 | 10,952 | 733 | 244 | 35 |
| Plymouth Coal Company, | 1 | 186,636 | 4 | 46,659 | 498 | 498 | 124 |
| West End Coal Company, | 1 | 121,830 | 4 | 30,457 | 593 | 593 | 148 |
| Hillman Vein Coal Company, | 1 | 65,889 | 1 | 65,889 | 281 | 281 | 281 |
| A. J. Davis,* | ..... | ..... | 6 | 28,676 | 423 | ..... | 70 |
| Crescent Coal Mining Company,* | ..... | ..... | 3 | 25,173 | 303 | ..... | 101 |
| Melville Coal Company,* | ..... | ..... | 5 | 14,215 | 245 | ..... | 49 |
| Reynolds & Moyer Coal Company, | 1 | 110,524 | 3 | 36,841 | 357 | 357 | 119 |
| Wyoming Coal Company Washery, | ..... | 58,630 | 1 | 58,630 | 19 | ..... | 19 |
| For all coal companies, | 60 | 124,290 | 269 | 27,722 | 25,650 | 427 | 95 |

* No life lost.

CLASSIFICATION OF FATAL AND NON-FATAL ACCIDENTS.

| Cause of Accidents. | Fatal. | Non-fatal. |
|---|---|---|
| By explosion of fire damp, | 9 | 54 |
| By falls of roof and coal, | 30 | 94 |
| By mine cars in various ways, | 6 | 41 |
| By explosion of powder and blasts, | 7 | 23 |
| By falling down shafts, | 3 | ..... |
| By miscellaneous causes in the mines, | 3 | 30 |
| By miscellaneous causes on surface, | 2 | 27 |
| Total, | 60 | 269 |

Number of wives left widows, 38; orphans, 121.

## Mine Accidents.

During 1897, 60 persons were killed or fatally injured, and 269 were more or less seriously hurt in or about the mines of the Fourth anthracite district. Of the said number, nine were killed or fatally injured and 54 seriously injured by explosions of fire-damp.

As stated many times before, the majority of this class of accidents would not occur if all were working with safety lamps, but if all worked with safety lamps in the mines that have high seams it is most probable that the number of accidents by falls of roof and of coal would very materially increase, because the light given by a safety lamp would not enable the miner to see loose and dangerous top or coal. It is only in exceedingly few cases that an explosion of gas occurs which can be attributed to the use of safety lamps, but they are numerous from the careless use of naked lights.

In nearly all the mines of this district there are copious feeders of explosive gases, especially so in the gangways, airways and advanced workings, and though in nearly all such places safety lamps only are used, the feeders are ignited from the explosions of blasts. Where these feeders are numerous, they ignite one another until the place is filled with flame, and a number of men are burned while endeavoring to extinguish such fires, even where safety lamps are exclusively used. In most of these places, water pipes having water under high pressure lead into each gangway from a reservoir on the surface; hose and other paraphernalia are provided, so that they can be promptly used to extinguish these fires; but, even with the best provisions hitherto devised, it is a very dangerous and uncertain work to strive to extinguish them. The heat interferes with the circulation of air and causes the roof and sides to fall, so that as soon as some of the burning feeders are extinguished, explosive gases accumulate and it is frequently found impossible to prevent their ignition by the darting up of snake-like flames of the burning feeders. Every year a number of accidents by explosions of gas occur in this unavoidable manner. A number are also burned through neglecting to make proper examination with a safety lamp before entering a place with a naked light.

There are 177 fire bosses employed in the mines of this district who devote their time entirely to making examinations for gas and watching the men, and air currents.

Thirty fatal and 94 serious non-fatal accidents were caused by falls of roof and of coal, either from the face or sides. These are by a large majority the most numerous class of accidents in every year. A large proportion occur when the miner is prying down either loose coal or loose rock and has taken a position from which he cannot retreat when the thing is falling. The only way to avert these accidents is for the men to use better precaution to secure a safe position and assure themselves that there is room to retreat before commencing to pry any loose rock or coal down.

A number of this class of casualties occur when men are trying hurriedly to replace a prop which has just been knocked down by a blast. It is remarkable how great a risk men will take to replace a prop to prevent a piece of roof from falling, even when the roof gives ominous indications of its approaching fall, and where they fail to replace it, are caught under it and either killed or injured. This class of casualties is peculiar to seams which cannot be undermined and where the coal is mined entirely by blasting with powder or high explosives.

Occasionally an accident by fall of roof or coal occurs because the miner neglects to pull a loose piece down as soon as he discovers it to be loose. Miners are too prone to put such work off until they have finished doing something else, or until the coal is loaded out from beneath, if it is rock, so as to keep it from mixing with the coal. It is chiefly a careless, shiftless class of miners that are caught in this manner, and they are a class that cannot be taught to improve because they are nearly all sluggards by nature.

A number of casualties occur owing to the haste of miners to see the effects of a blast. They rush forward into the powder smoke to see the effect, when something loosened by the blast and which they cannot see owing to the presence of smoke, falls upon them, causing fatal or serious injury. All that is necessary to prevent these is for the miners to wait a few minutes until the smoke has cleared and until everything that is loosened has fallen.

A few casualties from falls occur because the roof and face have not been examined and sounded properly in order to ascertain whether or not anything is loose, so that it can be pulled down or secured with props or double timbering. This class of accidents occurs chiefly in places that are comparatively safe and where appearances indicate no danger. Indifference to this is rapidly bred in what is known as safe places and the only excuse given when an accident occurs is that it was not known that any danger existed in the place. Examination by sounding should be frequently made in all places, no

matter how safe they may appear; so that dangerous points would be discovered and could be secured. Timber is furnished freely at all the mines and it is sent in to them in required lengths, so that rarely is there cause to take any risks for the want of material to make places as safe as propping or timbering can make them.

Six fatal and 41 serious non-fatal accidents were caused in various ways by hauling of mine cars in the mines. The victims of this class of accidents are mostly young men and boys who are employed as headmen or footmen on slopes and planes, and runners, drivers and door tenders. All these classes of employes have more or less to do with the moving of the mine cars, and the work is unavoidably dangerous.

Young men and boys are active and are naturally inclined to be almost reckless even in dangerous situations. They jump on and off moving cars, couple and uncouple cars when moving, ride sitting on the bumpers with their feet sliding on the rail and on front end of cars, run along side of moving cars on narrow passageways where if they should stumble, slip or fall it is impossible for them to escape being caught by the wheels. They will run alongside of a swiftly moving car to put a sprag in a wheel and to do a number of other foolish things.

The nature of their work is such that much of this must be done in order to execute the required work. All this is done in narrow and frequently low passages with no light but that of the lamp on their hat, or perhaps a safety lamp in their hand, and where swift currents of air are passing which are likely to extinguish their light, and it is surprising that they escape so well. They are diligent, quick in their movements and rarely complain if ample room is not provided for them. Where it is practicable room is made at least on one side, but lumps of coal fall from the cars and pieces of fallen rock or pieces of timber or boards frequently get in the way, which are a source of danger to the boys when doing their work. Occasionally a man going to meet a trip of cars, turns on the wrong side and is crushed between a car and rib. Sometimes they lose their light and cannot see which is the safe side and take the wrong one and are caught and injured. The only way to reduce this class of casualties is to enforce good discipline and prevent the boys from taking risks, and to provide wide, clean passages for the haulage ways.

Footmen are sometimes injured when failing to get out of the way of runaway cars at foot of slopes and planes. Safety holes are provided for them to stay in while the cars are being hoisted, but they seldom use them, and then only to run in when they hear a runaway car coming. Sometimes one fails to reach it and is caught and injured.

There were seven fatal and twenty-three serious non-fatal accidents from explosions of powder and premature blasts in this district during 1897. When we consider that 199,503 kegs, each holding 25 pounds of powder, and 316,660 pounds of dynamite of various grades were handled and used with light from a miner's lamp only, it is surprising that the accidents are not more frequent. The majority of these casualties occur from unexpected explosions of blasts, and most of them when a miner is returning to the face thinking that the squib has "missed" and the blast explodes when he is approaching. There is a risk at all times in returning to try another squib, if it is not certainly known that the first squib has failed. The most of the miners listen attentively to hear the squib go off; others are indifferent and when they think that ample time has been given, return to try another squib and when perhaps close to the face the blast explodes.

Some accidents of this class are caused by defective squibs, others because the squib is rendered unsafe by cutting the match too short to give proper time for the person who lights it to escape. These can be reduced only by diligent care on the part of the men themselves and a rigid discipline on the part of the officials. Three fatal accidents occurred by men falling down shafts. One seems to have opened a gate and walked into the shaft. He may have in the darkness thought the cage was there and walked on. No one was present and it was not known that he had fallen until search was made that night after his failing to return home at the usual time. The other two were killed because the rope broke, allowing the cage to fall to the bottom. It first caught in ice when lowered in the shaft, and when the rope was slack the cage broke loose and broke the rope.

Three fatal and 30 serious non-fatal accidents were caused in various unusual ways which could be classed with the others. A number of these were caused by kicking mules or being squeezed between mules and cars or ribs, by ropes on planes and slopes, by the handling of tools, axes, etc., and by the many ways by which a person may be hurt.

Two fatal and 27 non-fatal accidents happened on surface in various ways, but the most of these occurred by either culm or railroad cars and to boys when playing in and around the breakers.

The following table shows that a larger quantity of coal was mined per life lost in the year 1897 than in any previous year since the mine law was enacted. A study of the accompanying table shows conclusively that the number of accidents have decreased in comparison with the quantity of coal mined. In the first decade of years 87,409 tons were mined per life lost. In the second decade 91,507 tons were mined per life lost, and in the last seven years an average of 98,646 tons.

During each period the mines have been driven into deeper and much more dangerous parts of the basins. The danger from explosive gas and bad top and bad bottom is many times greater than it was when the mines were working nearer the outcrop. The increase in number of accidents are in those that occur by explosive gas and by falls of roof and sides, but the increase in the numbers of employes and in the quantity of coal produced has been greater in proportion.

TABLE B.—Showing the Production of Coal, Number of Persons Employed, Number in each Class of Fatal Accidents and Tons of Coal Mined per Life Lost in each Year from 1871 to 1897, inclusive.

| Years. | Tons of coal mined each year. | Average number of persons employed. | Average number of days in operation. | Fatal Accidents Underground Classified. | | | | | | On surface. | Total lives lost. | Tons of coal mined per life lost. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Explosions of gas. | Falling of roof and coal. | Crushed by mine cars. | Falling down shafts. | Explosions of powder and blasts. | Miscellaneous causes—Inside. | | | |
| 1871 | 3,000,000 | 9,870 | ..... | 1 | 13 | 6 | 2 | 1 | 24 | 6 | 53 | 56,000 |
| 1872 | 3,250,000 | 9,807 | ..... | 8 | 15 | 7 | 3 | ..... | 4 | 3 | 40 | 81,560 |
| 1873 | 4,232,000 | 11,325 | ..... | 6 | 11 | 12 | 3 | 4 | ..... | 9 | 46 | 92,000 |
| 1874 | 4,513,847 | 13,576 | ..... | 9 | 17 | 5 | 3 | 5 | 7 | 7 | 57 | 80,000 |
| 1875 | 4,261,263 | 15,008 | ..... | 6 | 19 | 5 | 14 | 10 | 1 | 8 | 63 | 67,629 |
| 1876 | 4,615,386 | 14,317 | ..... | 7 | 23 | 4 | 1 | 13 | 4 | 3 | 55 | 83,916 |
| 1877 | 4,080,377 | 14,073 | ..... | 1 | 25 | 1 | 2 | 4 | 3 | 2 | 38 | 107,377 |
| 1878 | 4,082,372 | 13,045 | ..... | 7 | 14 | 5 | ..... | 4 | 3 | 3 | 36 | 113,399 |
| 1879 | 6,310,256 | 15,582 | ..... | 12 | 30 | 15 | ..... | 5 | 1 | 2 | 65 | 97,080 |
| 1880 | 5,708,813 | 15,987 | 187.43 | 8 | 11 | 12 | 4 | 2 | 7 | 7 | 51 | 111,937 |
| 1881 | 7,021,508 | 16,808 | 221.58 | 10 | 28 | 10 | 3 | 7 | 3 | 18 | 79 | 88,879 |
| 1882 | 7,059,358 | 18,339 | 228.97 | 10 | 32 | 16 | 4 | 8 | 8 | 5 | 73 | 96,703 |
| 1883 | 7,667,221 | 21,475 | 223.69 | 7 | 35 | 15 | 12 | 14 | 6 | 10 | 89 | 86,148 |
| 1884 | 7,881,985 | 24,357 | 203.57 | 4 | 37 | 18 | 8 | 11 | 4 | 15 | 97 | 81,257 |
| 1885 | 6,177,644 | 19,073 | 194.90 | 11 | 17 | 6 | 4 | 6 | 39 | 6 | 89 | 71,833 |
| 1886 | 6,935,315 | 19,242 | 209.00 | 4 | 33 | 7 | ..... | 4 | 4 | 6 | 58 | 119,401 |
| 1887 | 7,540,754 | 20,154 | 213.73 | 6 | 37 | 11 | ..... | 3 | 7 | 11 | 65 | 116,011 |
| 1888 | 8,684,492 | 20,951 | 233.19 | 5 | 34 | 15 | 4 | 9 | 9 | 7 | 83 | 104,632 |
| 1889 | 7,330,123 | 19,752 | 184.52 | 8 | 29 | 13 | ..... | 5 | 2 | 10 | 67 | 104,927 |
| 1890 | 6,907,778 | 18,947 | 176.71 | 51 | 15 | 8 | 4 | 6 | 11 | 5 | 100 | 69,077 |
| 1891 | 7,639,250 | 19,411 | 190.68 | 19 | 37 | 11 | 3 | 12 | 6 | 8 | 96 | 79,575 |
| 1892 | 7,549,605 | 21,066 | 197.37 | 25 | 38 | 12 | ..... | 4 | 3 | 6 | 83 | 90,959 |
| 1893 | 8,065,768 | 23,229 | 191.91 | 22 | 46 | 12 | 2 | 4 | ..... | 4 | 84 | 96,021 |
| 1894 | 7,161,961 | 23,764 | 153.10 | 7 | 44 | 7 | 2 | 4 | 6 | 7 | 77 | 93,026 |
| 1895 | 8,066,529 | 24,669 | 162.10 | 10 | 33 | 13 | 2 | 5 | 7 | 4 | 74 | 109,005 |
| 1896 | 8,017,852 | 26,659 | 150.14 | 14 | 25 | 12 | 3 | 9 | 5 | 5 | 73 | 109,833 |
| 1897 | 7,457,418 | 25,650 | 133.92 | 9 | 30 | 6 | 3 | 7 | 3 | 2 | 60 | 124,290 |
| Total | 171,219,816 | ..... | ..... | 287 | 687 | 269 | 86 | 166 | 177 | 179 | 1,851 | 92,501 |

TABLE C.—Showing the Production of Coal for each of the First Two Decades and of the Last Seven Years, the Number of Fatal Accidents in each Class, and the Average Tons of Coal Mined per Life Lost.

| Years. | Tons of coal mined each year. | Average number of persons employed. | Average number of days in operation. | Fatal Accidents Underground Classified. | | | | | | | | Total lives lost. | Tons of coal mined per life lost. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Explosions of gas. | Falling of roof and coal. | Crushed by mine cars. | Falling down shafts. | Explosions of powder and blasts. | Miscellaneous causes—Inside. | On surface. | | | |
| 1871 to 1880, | 44,054,314 | 132,590 | ..... | 65 | 178 | 77 | 32 | 48 | 54 | 50 | | 504 | 87,409 |
| 1881 to 1890, | 73,206,109 | 199,090 | ..... | 116 | 267 | 119 | 39 | 73 | 93 | 93 | | 800 | 91,507 |
| 1891 to 1897, | 53,959,393 | 162,788 | ..... | 106 | 242 | 73 | 15 | 45 | 30 | 36 | | 547 | 98,646 |
| Total, | 171,219,816 | 494,468 | ..... | 287 | 687 | 269 | 86 | 166 | 177 | 179 | | 1,851 | 92,501 |

TABLE D.—Showing the Production, Average Number of Accidents for each Year in each of the First Two Ten Years and the Last Seven Years, and Average Tons of Coal Produced for each Year in said Periods.

| Years. | Tons of coal mined each year. | Average number of persons employed. | Average number of days in operation. | Fatal Accidents Underground Classified. | | | | | | On surface. | Total lives lost. | Tons of coal mined per life lost. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Explosions of Gas. | Falling of roof and coal. | Crushed by mine cars. | Falling down shafts. | Explosions of powder and blasts. | Miscellaneous causes—Inside. | | | |
| 1871 to 1880, | 4,405,431 | 13,259 | ..... | 6.5 | 17.8 | 7.7 | 3.2 | 4.8 | 5.4 | 5.0 | 50.4 | 87,409 |
| 1881 to 1890, | 1,320,619 | 19,909 | ..... | 11.6 | 26.7 | 11.9 | 3.9 | 7.3 | 9.3 | 9.3 | 80.0 | 91,507 |
| 1891 to 1897, | 5,395,989 | 23,255 | ..... | 17.1 | 34.5 | 10.4 | 2.1 | 6.4 | 4.3 | 5.1 | 78.1 | 98,646 |

The first mine law was enacted March 3, 1870. The Inspector for the first ten years was Mr. Thomas M. Williams. For the last seventeen years the present Inspector, Mr. Gwilwym M. Williams, has been in office. In 1885 the Pittston district was erected out of a portion of the Wilkes-Barre and Scranton districts. The collieries of Plains, Dorrance and Exeter township were then located in the Pittston, now the Third district.

## The Mines and Mine Inspection.

During the year 1897 the mines of this district were inspected several times and with the exception of the ones damaged by fire, water or caves, all were found in safe and lawful condition. Only in two instances was there just cause for complaint as to the ventilation, and these were soon remedied. Each mine foreman has his characteristics; one is prone to overlook the ventilation, the other the timbering, and others the maintenance of roomy gangways, and the fact that the Inspector comes around and finds fault does much to keep things in proper condition.

The power for producing ventilation is ample and only requires care in keeping it well up to the faces, and in this the most of the mine foremen deserve commendation, for they do it well. Timber and material for the safe conducting of mines are lavishly supplied and there never was a time when the mines were better secured by good propping and timbering. It is just to state also that there never was a time when so much timber was required, for the top is bad in nearly all the seams in nearly all the mines. The deeper the mines get, the poorer the top becomes.

The method of mining is gradually changing, having a marked tendency to leave larger pillars. At all the mines the refuse is utilized to fill old workings so as to add strength to the pillars, and at many, the culm and waste is flushed in from the surface to fill old workings. This most certainly is an important factor in preventing squeezes and will enhance the safety of the mines.

It is difficult to enforce the rule requiring that the powder and explosives shall be kept in locked boxes. In nearly all the mines there are a number of careless, obstinate miners who cannot be taught to keep the powder in their boxes, and yet these are frequently the very persons who are loud in their desire to magnify any dereliction on the part of a mine foreman or the company. There is a difference in the executive ability of mine foremen. Some are able to enforce obedience better than others, and these are the bosses who are characterized as being hard and tyranical. Yet they are the ones who have the fewest accidents in their mines. What is really necessary to reduce the number of accidents in these days is a discipline that compels obedience to well known rules.

Complaints have been made through newspapers that at some of the

shafts the men are not hoisted up as promptly as the law provides. These were investigated and the accusations were denied. Yet, it can be seen that where several hundreds of men are employed in a mine it is impossible to hoist the men and hoist coal in the last hour when all the men have finished their day's work and are going to the shaft. It requires about one hour in these mines to provide the required number of cars for the night shifts and these cannot be provided and have the men hoisted at the same time. I have no personal knowledge of any violation, but the conditions themselves indicate this difficulty and there is no way out of it. The law provides that whenever five men shall come to the bottom of the shaft they shall be hoisted. In one or two instances where men have complained, they have been compelled to stay in their working place until quitting time and this was a greater hardship to endure than to wait a short time at the bottom of the shaft.

There is practically no water in the mines of this district when they are over 500 feet in depth, unless it is that which follows the workings down from the outcrops. The mines are dry and most of them are exceedingly dusty. The gangways are occasionally sprinkled with water so that the dust is allayed, but the breasts are intensely dusty and the air currents, though large, are heavily charged with dust. It is with large volumes of air only that working is made tolerable. The presence of so much fine dust in the air may intensify the heat and cause greater expansion of the flame in explosions of gas, but I have had no cause to even suspect that the dust was itself explosive.

The ventilation is reported monthly as the law prescribes from all the mines except one. In this case the foreman has been provokingly careless. His reports are sent in only after repeated requests. He is an intelligent, capable foreman and is derelict only in this one particular.

The boiler inspection reports come in in lawful order. Some trouble was had in getting reports from inspectors of insurance companies, but they, on their attention having been called to the law sent the reports promptly and in satisfactory form.

### The South Wilkes-Barre Colliery.

When the report from this district was made for the year 1896 the Baltimore seam workings of the South Wilkes-Barre mine were filled with water to a height of 205 feet in the shaft. On February 1, 1897, two large iron tanks were used to raise the water out both day and night, and by May 23, it was all out. The gangways, airways and all other passages were found practically closed by falls of roof and sides and the heaving of the fireclay bottom, and all were literally filled with explosive gases. In the first week of March a small cave came down in a breast of the Hillman seam and released enough

gas to make an air current of 75,000 cubic feet per minute explosive, and kept it so for several weeks, but it gradually lessened until it was exhausted. They have cleared out the gangways and airways of Hillman seam and have been working steadily day and night to open those of the Baltimore seam, but it will take two or three months more to complete it. Extraordinary care was exercised in working, and so far they have been successful, having had not one accident. The work has been extremely dangerous.

The Conyngham Mine, Delaware and Hudson Canal Company.

This mine has had a fire in it for several years and was filled with water the second time in an endeavor to extinguish it. On January 14, 1897, the water had filled to a height of 313 feet. The Inspector being apprehensive of danger to the employes of the Hollenback mine lest the pillar should give way, requested that all employes of the latter mine be prohibited from entering the mine until it was considered safe, and the following day work at the mine was suspended. The water was poured into the Conyngham until it attained a height of 394 feet. Two bore holes were drilled to let the pent up gases escape.

On March 2, they started to hoist and pump the water out and the Lehigh and Wilkes-Barre Coal Company was permitted to work in the Hollenback, and started on March 8. By Saturday, September 18, the water was all pumped out and early in November evidence of the existence of a fire became noticeable again. A wide extent of the workings are caved, breaking down all to the surface and the fire lurks somewhere in the heart of the cave. On November 13 a current of noxious gases and steam that came out from the cave had a temperature of 100 degrees F., which at this writing has risen to 150 degrees.

Having flooded the mine with water twice and failed, they are now flushing culm in to fill a circuit of old workings around it, so as to shut the air entirely off and have it so isolated that it cannot do any injury. At this writing they are flushing the culm in at three points, viz: At the Baltimore air shaft, at one of the bore holes and at the Conyngham shaft. It is hoped and believed that this plan will have the effect of extinguishing the fire.

The Hillman, Kidney and Bowkley seams of the Conyngham are worked from the No. 2 shaft. This was idle for the first eleven months of 1897 owing to a squeeze which had taken place in 1896. Work was resumed there at the beginning of December, 1897. The mine was inspected December 10 and found restored to a satisfactory condition. The ventilation was ample and the gangways and breasts were well secured with excellent timbering work.

The Baltimore No. 2, Delaware and Hudson Canal Company.

On Monday, December 21, 1896, a fire ignited by a blast in this mine required the flooding of the Red Ash slope workings. The fire being in a high part of the workings, a bore hole was drilled to let the gases escape so as to permit the water to fill to the highest points. On March 24, 1897, at 1 P. M., the bore hole broke into the mine and the confined gases instantly rushed up and were ignited by the boiler fire of the boring machine. The flame consumed the shanty and boring machine and threatened to destroy several houses in the vicinity. It made a flame eighty feet high, a mighty torch swayed by the wind. The fire department was called out and they had to work incessantly for a day and a half to save the houses. At 4 P. M., March 25, the flame was extinguished but the gas continued to escape for several weeks. Finally it ceased and the water in the mine filled to the hole.

By October, 1897, all the water was pumped out and the workings were found to have been entirely closed in by falls of roof caused by the action of the water. The slope is being remodelled and arranged so that the gangways will be above the old workings and in new ground. When this is completed this part of the mine will be much better arranged than the old one was.

A Squeeze and Serious Inflow of Water at the Avondale Mine.

Towards the middle of March, 1897, a squeeze began in the Red Ash seam workings west of the No. 1 inside slope in the Avondale Mine of the Delaware, Lackawanna and Western Railroad Company.

The seam was 22 feet in thickness and the workings in this part were old and had for years been abandoned but now they had just resumed working a block of coal formerly left as being too poor in quality to mine. The pillars were irregular and at some places the breasts were unusually wide and as usual in this seam the gobs were high.

By March 24th the squeeze affected the workings in the Ross seam directly over the seat of the trouble in the Red Ash seam. The rocks overlying the Ross workings cracked, and crevices were opened through which a stream of water flowed into the mine, which was estimated to be about 14,000 gallons per minute. It ran down into the workings of No. 3 slope which is a slope sunk from the lower lift of the No. 1 slope. It was evident at once that the pumps could not pump the water and they were taken up.

Dams had been already partially constructed across the gangway and airway leading into the workings connected with the Nottingham and these were hastily completed. By March 29th the No. 3 slope and its workings were submerged and it began to fill upon the dams. The next day the dams began to leak and the quantity leaking through

increased as the water raised. By April 20 the water in Avondale had reached a height of 150 feet vertical above the dams and the leakage into the Nottingham had filled their entire workings below the seventh lift.

At this time it was apparent that the inflow of water had been materially reduced and the D., L. & W. Company decided to instal the pumps and make energetic efforts to control the water. It continued to rise in the Nottingham until May 8. The Lehigh and Wilkes-Barre by this time had installed more pumps than were needed at the fifth lift to hold it. The number of pumps necessary to hold it were started and it was kept at this height until September 13. The workings of six lifts were submerged. On this date they started to reduce the water and have unceasingly pumped day and night in both mines ever since. At this time it has been pumped down to the eighth lift in the Nottingham and to the level of the dams at bottom of No. 1 slope in the Avondale mine. The quantity of inflow has very materially decreased, being not more than one-half as much as it was when it broke into the mine, and it is confidently expected to decrease as much again as the crevices in the top works become filled with clay, etc.

The production of coal had to be suspended in both mines. One of the hoisting compartments in the Nottingham shaft had to be utilized for additional steam and column pipes required for the extra pumps, but after an idleness of two and a half months that part of the mine which was not occupied by the water was put in operation and the coal was hoisted by one cage. They have been hoisting about 400 mine cars per day. On October 7 work was resumed at the Avondale mines and they are working in the No. 2 slope and that part of the Ross seam workings lying to the rise from the shaft level. It is a question of only a few months before both mines will be producing their usual quantity of coal.

In the breaking in of the water at Avondale there is an ominous warning to all who mine under the flats of the Susquehanna river, of the possibility of enough water breaking into one of the mines to flood and ruin all the mines that are connected together. All the mines are connected from West Nanticoke to Edwardsville except the Woodward, and it behooves all to exercise extraordinary care in mining. The outcrops of all the seams are buried under the sandy flats between Nanticoke gap and the upper end of Plymouth, and to mine the coal in the approaches to these outcrops needs more than the ordinary care and even with the exercise of all possible care, a pot hole or deep crevice in the rock may be struck at any time to the ruin of all these mines.

## An Extensive Squeeze at the Woodward Mine.

On the morning of March 26 a squeeze began in West gangway of the Red Ash workings of the Woodward mine of the Delaware, Lackawanna and Western Company at Plymouth township. It was first noticed by the fire boss when making the usual morning examination of the mine. The colliery was started to work as usual but the squeeze by this time had rapidly spread and had assumed a dangerous aspect and all the employes were sent out. The squeezing was first noticed at the inner breasts where the seam was unusually thick and shelly. The pillars and breasts were of uniform breadth, the pillars being 30 feet and the breasts 24 feet in width, and it was believed that enough pillars were reserved to make sure of preventing a squeeze. However, it came, and kept crushing and spreading until the latter part of May, so that by that time an area of 35 acres was affected, all above the second lift and west of the shaft. As usual in this district, as soon as the squeeze began, explosive gases appeared in the return airways and the affected workings were also filled with the same kind of gases. A great amount of timbering work was done in the effort to prevent its spreading, and some undoubtedly to good purpose. All work was done with safety lamps and men were kept on the outer side of the squeeze where they could retreat if necessary. The workings of all the seams were affected but there was no coal lost aside from what was in the pillars. The most important parts of the gangways and airways have been reopened and repaired and the work of opening the others is still progressing. Excellent care was taken in the execution of the work for much of it was in perilous situations, but all was well done and without injury to any who took part.

## The Destruction of the Baltimore Tunnel Breaker.

Saturday morning, February 20, when about to start to work, the Baltimore Tunnel breaker took fire in the oil room, evidently from a boy's lamp, and in one hour was entirely consumed. This was the first breaker erected in the Wyoming Valley. It was erected in 1854 by the Baltimore Coal Company, and the seam they worked is designated as the Baltimore seam throughout the valley and evidently will be known by that name as long as it will be spoken of.

The first shipment of coal was made by the old canal from the boat sheds near East Market street, Wilkes-Barre. The breaker was located about half a mile east of the boat sheds and here the first locomotive in the Wyoming Valley was used to haul the cars back and forth between the breaker and the chutes, and before the breaker was erected, between the mine and the chutes. In 1867 the colliery was purchased by the Delaware and Hudson Canal Company and they are

still its possessors. The breaker was not rebuilt and the coal of the Baltimore tunnel is now hoisted up the new No. 4 shaft and hauled by a locomotive to the Baltimore No. 2 breaker where it is prepared and shipped to market. Therefore the name Baltimore tunnel will be superseded by the name Baltimore Shaft No. 4 in all the reports of the future.

### The Burning of the West End Coal Company's Breaker.

At about ten o'clock Monday morning, March 29, the West End Coal Company's breaker at Mocanaqua was discovered to be on fire, and in a short time was completely burned. The colliery was idle and it is not known how the fire originated. On March 14, 1893, a breaker on the same site was burned and this one was erected in its place and commenced to prepare and ship coal on August 15, 1893. A new breaker was erected again on the same site and this was completed and commenced to prepare and ship coal September 2, 1897.

## Record of Improvements for the Year 1897.

### Improvements by the Lehigh and Wilkes-Barre Coal Company.

At South Wilkes-Barre colliery a rock tunnel has been driven from the Hillman to the Kidney seam for hauling purposes. It is 450 feet in length and 8x12 feet area.

At the Maxwell colliery a new fan has been erected thirty-five feet diameter, Guibal pattern, 12 feet wide. Area of upcast is 192 square feet. Horizontal engine working direct. Cylinder 20x48 inches diameter. Engine horse power, 150.

### Improvements by the Delaware and Hudson Canal Company.

At Baltimore tunnel a shaft was sunk to save hauling the coal out from the old tunnel. The new shaft is designated as the Baltimore No. 4 shaft and the mine will be known hereafter by that name. The shaft is from the surface to the Baltimore seam. It is 97 feet in depth having an area of 12 by 30 feet. A new gravity plane is being made to take the place of three old planes. When finished it is to be 3,300 feet in length, having grades varying from 7 to 12 degrees. Its sectional area is 8x18 feet.

A rope haulage has been installed to haul the coal from the head of slope and foot of plane in the Red Ash seam to the bottom of the shaft. The engines are located on the surface.

At Baltimore No. 3 a new gravity plane has been made 800 feet long having a grade of 15 degrees and a sectional area of 8 by 16 feet.

At Baltimore No. 2 the trestle leading from the shaft to the breaker was torn down and a conveyor was constructed to convey

the coal from the shaft to the breaker. Another conveyor line was constructed to convey the coal of the Baltimore No. 4 shaft to this breaker.

At the Boston colliery the breaker hoisting tower was torn down and a conveyor was constructed to scrape the coal from the dump at the shaft to the head of the breaker, and in the mine a tunnel has been driven from the bottom to the top split of the Red Ash seam. It is 400 feet in length and 7x12 feet area.

The No. 2 shaft at Plymouth was extended from the Bennett to the Red Ash seam 312 feet, making the total depth of the shaft 898 feet.

A new fan was erected to take the place of the old one. It is 22 feet in diameter, encased by a brick wall. It runs 70 revolutions and is exhausting 97,800 cubic feet of air. The engine is horizontal direct acting, 16x30 inch cylinder.

At the No. 3 colliery, Plymouth, the Hillman seam was opened and a slope was sunk to a length of 620 feet; average grade 12 degrees; 7x12 feet area.

At the No. 4 colliery a new slope has been sunk in the Red Ash seam to a length of 800 and it is still being driven. It is 7x14 feet area and has an average grade of 7 degrees. It opens a large area of excellent coal.

### Improvements by the Susquehanna Coal Company.

In the No. 1 shaft, Nanticoke, an extension of tunnel has been driven from the Lee to the Ross seam a length of 960 feet, and 7x14 feet sectional area. A tunnel has been driven from the Forge through troubled ground a length of 1,570 feet, 7x14 feet area and is still being driven. An extension has been made by a tunnel from the Hillman to the Forge seam 650 feet in length, 7x14 feet area. A tunnel has been driven for ventilation purposes from the Hillman to the Hillman 240 feet in length and 7x14 feet area.

In the No. 4 slope, Nanticoke, the main slope has been extended through the rock from the Hillman towards the Forge seam a length of 350 feet and it is still being driven. The No. 21 tunnel was extended a length of 700 feet from the Mills to the Mills and Tunnel No. 23 driven on from the Hillman to the Mills a length of 500 feet. The area of all is 7x12 feet.

In the No. 2 shaft, Nanticoke, No. 5 slope was extended through an anticlinal from the Lee to the Lee a length of 420 feet and the No. 11 slope was driven through the rock from the Ross to the Lee seam an extended length of 850 feet. A new gravity plane 850 feet in length was made in the Ross seam.

At the No. 6 shaft, Glen Lyon, No. 5 tunnel was driven to a length

of 830 feet from the Twin to the Ross seam. It is 7x14 feet area. Three new short gravity planes were made, one of which was in the No. 6 slope.

Improvements by the Delaware, Lackawanna and Western Company.

At the Woodward mine a rock tunnel was driven through an anticlinal a length of 621 feet, having a sectional area of 7x14 feet. A new barn has been built in the Red Ash seam which is lighted by electric incandescent lamps. It is the safest, cleanest and best lighted in the whole district. At the Bliss mine two rock tunnels were driven one 1,000 feet in length and the other 179 feet. Each has an area of 7x12 feet. Two slopes were driven, one 1,120 feet and the other 1,140 feet in length. The grade on the first is 20 degrees and on the other 24 degrees.

Improvements by the Parrish Coal Company.

At the Buttonwood Colliery a slope has been driven in the Hillman seam to the dip south of the shaft a length of 515 feet on a grade of 27 degrees. Two gravity planes were made, one in the Hillman seam, 850 feet in length and 8 degrees grade, and one in the Kidney seam, 1,100 feet in length on a grade of 11 degrees.

Improvements by the Alden Coal Company.

At the No. 2 shaft of the Alden Colliery a new steel head-frame has been erected instead of the old timber one; a very great improvement.

Several other minor improvements were made in the most of the mines which are not of sufficient importance to be recorded in this report.

Annual Examination of Applicants for Mine Foreman Certificate.

The annual examination of applicants for certificates of qualification of mine foreman and assistant mine foreman was held at the Union street school building, Wilkes-Barre, Pa., June 12, 15 and 16. The board of examiners was G. M. Williams, Inspector of mines, Edward Mackin, superintendent; Andrew McGeehan and William D. Morgan, miners.

Twenty-three applicants for mine foreman certificates appeared in the examination and the following eleven were recommended to have certificates:

William H. Thomas, Lee, Luzerne county.
James D. Nichols, Nanticoke.
William L. Jones, Peely, Luzerne county.
William J. Lloyd, Wanamie.

Patrick H. Devers, Kingston.
Benjamin G. Jones, 313 E. Church St., Nanticoke.
Thomas James, 275 E. Broad St., Nanticoke.
Gus Hinterleitner, Plymouth.
Thomas D. Nicholls, Nanticoke.
Daniel Powell, Nanticoke.
Thomas Richards, S. Market St., Nanticoke.

Forty-five persons were recommended to have certificates qualifying them to act as assistant foremen.

Every man who is required to make examination of a mine in this district has to be the possessor of a certificate of qualification for either mine foreman or assistant mine foreman.

TABLE No. 1—Showing Location, etc., of Collieries in the Fourth Anthracite Mine District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Hollenback No. 2, | Lehigh and Wilkes-Barre Coal Co., | Luzerne, | Elmer H. Lawall, General Manager; W. J. Richards, Chief Engineer; Morgan R. Morgans, Inside Superintendent; W. H. Henning, Outside Superintendent, | Wilkes-Barre. |
| Empire No. 4, | Lehigh and Wilkes-Barre Coal Co., | Luzerne, | | |
| Stanton No. 7, | Lehigh and Wilkes-Barre Coal Co., | Luzerne, | | |
| South Wilkes-Barre Nos. 3 & 5, | Lehigh and Wilkes-Barre Coal Co., | Luzerne, | | |
| Maxwell No. 20, | Lehigh and Wilkes-Barre Coal Co., | Luzerne, | | |
| Colliery No. 9, | Lehigh and Wilkes-Barre Coal Co., | Luzerne, | | |
| Lance No. 11, | Lehigh and Wilkes-Barre Coal Co., | Luzerne, | | |
| Nottingham No. 15, | Lehigh and Wilkes-Barre Coal Co., | Luzerne, | | |
| Reynolds No. 16, | Lehigh and Wilkes-Barre Coal Co., | Luzerne, | | |
| Wanamie Nos. 18 & 19, | Lehigh and Wilkes-Barre Coal Co., | Luzerne, | | |
| Baltimore Tunnel, | Delaware and Hudson Canal Co., | Luzerne, | C. C. Rose, General Superintendent, | Scranton. |
| Baltimore No. 2, | Delaware and Hudson Canal Co., | Luzerne, | | |
| Baltimore No. 3, | Delaware and Hudson Canal Co., | Luzerne, | | |
| Conyngham, | Delaware and Hudson Canal Co., | Luzerne, | | |
| Boston, | Delaware and Hudson Canal Co., | Luzerne, | | |
| No. 2 Plymouth, | Delaware and Hudson Canal Co., | Luzerne, | | |
| No. 3 Plymouth, | Delaware and Hudson Canal Co., | Luzerne, | | |
| No. 4 Plymouth, | Delaware and Hudson Canal Co., | Luzerne, | | |
| No. 5 Plymouth, | Delaware and Hudson Canal Co., | Luzerne, | | |
| Colliery No. 3, | Susquehanna Coal Co., | Luzerne, | Morris Williams, Manager; J. H. Bowden, Chief Mining Engineer; Geo. T. Morgan, General Superintendent, | Wilkes-Barre & Nanticoke. |
| Colliery No. 5, | Susquehanna Coal Co., | Luzerne, | | |
| Colliery No. 6, | Susquehanna Coal Co., | Luzerne, | | |
| Colliery No. 7, | Susquehanna Coal Co., | Luzerne, | | |
| Nos. 1 and 4 Shafts, | Kingston Coal Co., | Luzerne, | Daniel Edwards, General Superintendent, | Kingston. |
| Nos. 2 and 3 Shafts, | Kingston Coal Co., | Luzerne, | | |
| Gaylord Shaft and Slope, | Kingston Coal Co., | Luzerne, | | |
| Avondale, | Delaware, Lack. & West. R. R. Co., | Luzerne, | W. R. Storrs, General Coal Agent; W. H. Storrs, Assistant Coal Agent; A. H. Storrs, Superintendent; John F., Snyder, Chief Mining Engineer; B. Hughes, General Mine Superintendent, | Scranton. |
| Woodward Nos. 1 & 2, | Delaware, Lack. & West. R. R. Co., | Luzerne, | | |
| Bliss, | Delaware, Lack. & West. R. R. Co., | Luzerne, | | |
| Auchincloss Nos. 1 & 2, | Delaware, Lack. & West. R. R. Co., | Luzerne, | | |
| Dorrance, | Lehigh Valley Coal Co., | Luzerne, | W. A. Lathrop, General Superintendent, | Wilkes-Barre. |
| Franklin, | Lehigh Valley Coal Co., | Luzerne, | W. A. Lathrop, General Superintendent, | Wilkes-Barre. |
| No. 1 Red Ash, | Red Ash Coal Co., | Luzerne, | M. B. Williams, | Wilkes-Barre. |
| No. 2 Red Ash, | Red Ash Coal Co., | Luzerne, | M. B. Williams, | Wilkes-Barre. |
| Alden, | Alden Coal Co., | Luzerne, | K. M. Smith, | Alden Station. |
| Dodson, | Plymouth Coal Co., | Luzerne, | James B. Davies, | Plymouth. |
| Parrish, | Parrish Coal Co., | Luzerne, | H. H. Ashley, | Plymouth. |
| Buttonwood, | Parrish Coal Co., | Luzerne, | H. H. Ashley, | Plymouth. |
| West End, | West End Coal Co., | Luzerne, | John Conyngham, | W'Barre & Shicksh'ny. |
| Lee, | Mellville Coal Co., | Luzerne, | J. N. Rice, Manager, | Lee & Scranton. |
| Hadleigh, | Crescent Coal Mining Co., | Luzerne, | George W. Milnes, | Wilkes-Barre. |
| Hillman Vein, | Hillman Vein Coal Co., | Luzerne, | S. J. Tonkin, | Wilkes-Barre. |
| Warrior Run, | A. J. Davis, | Luzerne, | A. J. Davis, | Peely & Wilkes-Barre. |
| Chauncey, | Reynolds & Moyer Coal Co., | Luzerne, | C. H. Reynolds, | Kingston. |
| Wyoming, | Wyoming Coal Co., | Luzerne, | A. R. Anthony, | Sugar Notch. |

TABLE NO. 2.—Gives the Total Number of Tons of Coal Mined in each Colliery, Number of Days Worked, Number of Employes, Number of Persons Killed and Injured, Number of Kegs of Powder used, etc., in the Fourth Anthracite District for the year ending December 31, 1897.

| Names of Collieries. | Location. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs of powder used. | Number of pounds of dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lehigh and Wilkes-Barre Coal Co. | | | | | | | | | | | | | | |
| Hollenback No. 2, | Wilkes-Barre, | 159,513.10 | 15,048.00 | 13,768.10 | 130,697.00 | 126.60 | 612 | 1 | 6 | 4,464 | 11,000 | 33 | 70 | .... |
| Empire No. 4, | Wilkes-Barre, | 19,026.12 | 4,560.00 | 995.10 | 13,471.02 | 16.20 | 507 | .... | 2 | 334 | 5,750 | 30 | 68 | 2 |
| South Wilkes-Barre Nos. 3 & 5, | Wilkes-Barre, | 65,445.10 | 20,000.00 | 16,868.00 | 28,577.10 | 21.60 | 498 | .... | 5 | 252 | 13,500 | 18 | 40 | 1 |
| Stanton No. 7, | Wilkes-Barre, | 202,516.09 | 20,531.00 | 13,911.04 | 168,074.05 | 127.40 | 753 | 2 | 12 | 4,443 | 14,000 | 48 | 85 | 1 |
| Maxwell No. 20, | Ashley, | 384,931.08 | 19,162.00 | 22,420.00 | 343,349.08 | 132.50 | 948 | 3 | 11 | 9,110 | 10,200 | 18 | 62 | 1 |
| Sugar Notch No. 9, | Sugar Notch, | 172,601.19 | 9,581.00 | 3,367.10 | 159,653.09 | 118.20 | 604 | .... | 2 | 5,411 | 1,400 | 21 | 65 | 1 |
| Lance No. 11, | Plymouth, | 219,105.07 | 17,335.00 | 2,517.05 | 199,253.02 | 127.10 | 795 | .... | 5 | 6,006 | 17,000 | 22 | 96 | .. .. |
| Nottingham No. 15, | Plymouth, | 223,111.11 | 48,335.00 | 4,489.00 | 170,267.11 | 115.72 | 497 | 1 | 14 | 4,257 | 2,900 | 42 | 53 | 2 |
| Reynolds No. 16, | Plymouth, | 192,616.07 | 12,772.00 | 874.00 | 178,970.07 | 123.80 | 558 | .... | 2 | 4,590 | 400 | 10 | 89 | 1 |
| Wanamie Nos. 18 & 19, | Wanamie, | 210,532.07 | 13,687.00 | 10,912.11 | 185,932.16 | 117.50 | 628 | 3 | 8 | 5,906 | 30,550 | 30 | 105 | 2 |
| Total, | | 1,849,401.00 | 181,031.00 | 90,123.10 | 1,578,246.10 | *102.66 | 6,420 | 11 | 67 | 44,873 | 106,700 | 272 | 733 | 11 |
| Del. and Hudson Canal Co. | | | | | | | | | | | | | | |
| Baltimore Tunnel | Wilkes-Barre, | 23,392.16 | 6,000.00 | 733.17 | 16,658.19 | 25.00 | 457 | ... | 2 | 605 | 105 | 24 | ..... | .... |
| Baltimore Shaft No. 2, | Wilkes-Barre, | 73,056.03 | 8,208.00 | 1,519.08 | 63,328.15 | 96.75 | 300 | 2 | 2 | 2,216 | 800 | 18 | 65 | .... |
| Baltimore Shaft No. 3, | Wilkes-Barre, | 171,260.05 | 12,312.00 | 2,091.14 | 156,796.11 | 188.25 | 526 | .... | 3 | 5,197 | 3772 | 27 | 67 | .... |
| Conyngham, | Wilkes-Barre, | 23,472.14 | 15,504.00 | 112.10 | 7,856.04 | 15.00 | 378 | .... | 1 | 364 | 200 | 34 | 27 | .... |
| Boston, | Plymouth twp., | 100,398 01 | 8,202.00 | ..... | 92,196.01 | 166.50 | 313 | 1 | 1 | 3,452 | 1,03772 | 18 | 34 | .... |
| No. 2 Plymouth, | Plymouth twp., | 52,687.09 | 13,680.00 | ..... | 38,407.09 | 54.30 | 240 | 4 | 4 | 970 | 695 | 30 | 34 | .... |
| No. 3 Plymouth, | Plymouth twp., | 262,110.04 | 10,944.00 | 2,645.00 | 248,521.04 | 209.00 | 564 | 1 | 3 | 10,160 | 100 | 24 | 85 | .... |
| No. 4 Plymouth, | Plymouth twp., | 187,849.15 | 8,202.00 | ..... | 179,647.15 | 215.50 | 456 | 1 | .... | 6,030 | 1,000 | 18 | 59 | .... |
| No. 5 Plymouth, | Plymouth, | 247,621.03 | 16,416.00 | 5,327.10 | 225,877.13 | 212.00 | 530 | 2 | 3 | 9,488 | 950 | 36 | 76 | .... |
| Total, | | 1,141,188.10 | 99,468.00 | 12,429.19 | 1,029,290.11 | *131.33 | 3,964 | 11 | 19 | 38,482 | 4,925 | 229 | 447 | .... |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Susquehanna Coal Co.** | | | | | | | | | | | | | | |
| Shaft No. 1, breaker No. 7, | Nanticoke, | 472,704 03 | 55,000.00 | ..... | ..... | 168.90 | 1,523 | 4 | 28 | ..... | ..... | 74 | 51 | .... |
| Shaft No. 2, breaker No. 5, | Nanticoke, | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 6 | ..... | ..... | ..... | ..... | .... |
| Slope No. 4, breaker No. 5, | Nanticoke, | 408,807.01 | 51,528.00 | 21,141.00 | 1,133,587.07 | 170.80 | 1,530 | .... | 4 | 27,020 | 54,700 | 84 | 158 | 5 |
| Shaft No. 6, breaker No. 6, | Glen Lyon, | ..... | ..... | ..... | ..... | ..... | ..... | .... | 11 | ..... | ..... | ..... | ..... | .... |
| Slope No. 6, breaker No. 6, | Glen Lyon, | 409,841.03 | 30,096.00 | ..... | ..... | 169.25 | 1,197 | 1 | 5 | ..... | ..... | 66 | 128 | 5 |
| Tunnel No. 6, breaker No. 6, | Glen Lyon, | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 1 | ..... | ..... | ..... | ..... | .... |
| Total, | | 1,291,352.07 | 136,624.00 | 21,141.00 | 1,133,587.07 | *169.65 | 4,250 | 11 | 55 | 27,020 | 54,700 | 224 | 337 | 10 |
| **Kingston Coal Co.** | | | | | | | | | | | | | | |
| Shaft No. 1, breaker No. 4, | Edwardsdale, | 291,303.15 | 6,600.00 | ..... | 284,703.15 | 163.60 | 961 | 1 | 4 | 8,330 | 7,200 | 62 | 110 | .... |
| Shaft No. 4, breaker No. 4, | Edwardsdale, | | | | | | | 1 | 4 | | | | | |
| Shaft No. 2, breaker No. 2, | Edwardsdale, | 339,951.00 | 4,250.00 | 15,684.03 | 320,016.17 | 173.50 | 1,014 | .. | 4 | 9,394 | 1,950 | 45 | 114 | 3 |
| Shaft No. 3, breaker No. 2, | Edwardsdale, | | | | | | | 3 | 4 | | | | | |
| Gaylord Shaft and Slope, | Plymouth, | 100,262.14 | 2,021.00 | 1,918.10 | 96,323.04 | 128.65 | 383 | .... | 3 | 3,525 | 300 | 31 | 48 | .... |
| Total, | | 731,517.09 | 12,871.00 | 17,602.13 | 701,043.16 | *155.25 | 2,358 | 5 | 19 | 21,249 | 9,450 | 138 | 272 | 3 |
| **Del., Lack. & West. R. R. Co.** | | | | | | | | | | | | | | |
| Avondale, | Plymouth twp., | 84,959.05 | 41,000.00 | 818.00 | 43,141.05 | 79.00 | 405 | .... | 3 | 1,836 | 600 | 38 | 52 | 1 |
| Woodward Nos. 1 and 2, | Plymouth twp., | 239,278.10 | 20,000.00 | 3,097.14 | 216,180.16 | 136.80 | 814 | 2 | 17 | 6,099 | 4,000 | 24 | 99 | 1 |
| Bliss and Hanover Tunnel, | Hanover twp., | 167,322.10 | 31,396.00 | 1,598.13 | 134,327.17 | 173.80 | 565 | 1 | 13 | 5,571 | 13,650 | 11 | 42 | 1 |
| Auchincloss Nos. 1 and 2, | Hanover twp., | 8,391.00 | 7,849.00 | 542.00 | ..... | ..... | 157 | 2 | 4 | 195 | 6,850 | 7 | 12 | .... |
| Total, | | 499,951.05 | 100,245.00 | 6,056.07 | 393,649.18 | *129.83 | 1,941 | 5 | 37 | 13,701 | 25,100 | 80 | 205 | 3 |
| **Lehigh Valley Coal Co.** | | | | | | | | | | | | | | |
| Dorrance, | Wilkes-Barre, | 249,982.00 | 14,136.00 | 38,093.00 | 197,753.00 | 143.00 | 686 | 2 | 2 | 5,396 | 4,206 | 22 | 67 | 2 |
| Franklin Rock and Old Sope, | Wilkes-Barre, | 99,384.16 | 7,182.00 | 2,399.15 | 89,803.01 | 85.05 | 675 | 2 | 5 | 2,821 | 1,399 | 35 | 51 | 1 |
| Total, | | 349,366.16 | 21,318.00 | 40,492.15 | 287,556.01 | *114.17 | 1,361 | 4 | 7 | 8,217 | 5,605 | 57 | 118 | 3 |
| **Red Ash Coal Co.** | | | | | | | | | | | | | | |
| No. 1 Red Ash, | Wilkes-Barre, | 93,171.10 | 6,840.00 | ..... | 86,331.10 | 98.70 | 325 | .... | 2 | 2,653 | 200 | 15 | 21 | 1 |
| No. 2 Red Ash, | Wilkes-Barre, | 116,787.02 | 3,648.00 | 2,724.00 | 110,415.02 | 101.40 | 407 | .... | 2 | 3,917 | 300 | 8 | 36 | .... |
| Total, | | 209,958.12 | 10,488.00 | 2,724.00 | 196,746.12 | 100.05 | 732 | .... | 4 | 6,570 | 500 | 23 | 57 | 1 |
| **Parrish Coal Co.** | | | | | | | | | | | | | | |
| Parrish, | Plymouth, | 158,008.12 | 14,136.00 | 5,745.15 | 138,126.17 | 162.00 | 587 | 5 | 8 | 4,858 | 4,200 | 31 | 58 | .... |
| Buttonwood, | Hanover twp., | 135,580.08 | 7,296.00 | 1,684.00 | 126,600.08 | 123.10 | 585 | 1 | 5 | 4,054 | 12,750 | 4 | 51 | .... |
| Total, | | 293,589.00 | 21,432.00 | 7,429.15 | 264,727.05 | 142.50 | 1,172 | 6 | 13 | 8,912 | 16,950 | 35 | 109 | .... |
| **Miscellaneous Coal Companies.** | | | | | | | | | | | | | | |
| Alden Coal Co., | Alden, | 230,606.18 | 7,000.00 | 4,867.00 | 218,133.18 | 176.10 | 733 | 3 | 21 | 6,025 | 9,100 | 20 | 80 | .... |
| Dodson Plymouth Coal Co., | Plymouth, | 185,560.03 | 15,000.00 | 5,089.00 | 165,471.03 | 202.05 | 498 | 1 | 4 | 5,743 | 800 | 10 | 37 | .... |

TABLE NO. 2. —Continued.

| Names of Collieries. | Location. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs of powder used. | Number of pounds of dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hadleigh Crescent Coal Mining Co., | Sugar Notch, | 75,321.11 | 9,000.00 | ..... | 66,521.11 | 108.50 | 303 | .... | 3 | 1,364 | 480 | 8 | 24 | .... |
| West End Coal Co., | Mocanaqua, | 121,830.00 | 19,000.00 | 6,633.00 | 96,197.00 | 104.30 | 593 | 1 | 4 | 2,367 | 16,300 | 26 | 2 | .... |
| Hillman Vein Coal Co., | Wilkes-Barre, | 65,889.17 | 10,220.00 | 8,334.00 | 47,335.17 | 137.60 | 281 | 1 | 1 | 2,388 | 2,200 | 12 | 25 | .... |
| Warrior Run, A. J. Davis, | Warrior Run, | 172,057.18 | 14,865.00 | 1,887.00 | 155,305.18 | 168.80 | 423 | .... | 6 | 4,108 | 2,500 | 32 | 24 | .... |
| Lee Melville Coal Co., | Lee, | 71,078.10 | 1,080.00 | 374.00 | 69,624.10 | 150.20 | 245 | .... | 5 | 2,922 | ..... | 12 | 22 | .... |
| Chauncey Reynolds & Moyer Coal Co., | Plymouth twp., | 89,996.18 | 1,634.69 | 1,203.14 | 87,158.15 | 220.85 | 336 | 1 | 3 | 5,562 | ..... | 3 | 37 | .... |
| Wyoming Coal Co. Washery, | Sugar Notch, | 58,630.08 | 3,000.00 | ..... | 55,630.08 | 211.00 | 19 | .... | 1 | ..... | ..... | 3 | 2 | .... |
| Reynolds & Moyer Washery, | Plymouth, | 20,527.11 | 902.00 | ..... | 19,625.11 | 119.00 | 21 | .... | .... | ..... | ..... | 2 | ..... | .... |
| | | 1,091,093.14 | 81,701.09 | 28,387.14 | 981,004.11 | *159.84 | 3,452 | 7 | 48 | 30,479 | 31,380 | 128 | 253 | .... |

Recapitulation. TABLE No. 2.—Continued.

| Names of Collieries. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs of powder used. | Number of pounds of dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lehigh and Wilkes-Barre Coal Company, | 1,849,401.00 | 181,031.00 | 90,123.10 | 1,578,246.10 | 102.66 | 6,420 | 11 | 67 | 44,873 | 106,700 | 272 | 733 | 11 |
| Delaware and Hudson Canal Company, | 1,141,188.10 | 99,468.00 | 12,429.19 | 1,029,290.11 | 131.33 | 3,964 | 11 | 19 | 38,482 | 4,925 | 229 | 447 | .... |
| Susquehanna Coal Company, | 1,291,352.07 | 136,624.60 | 21,141.60 | 1,133,587.07 | 169.65 | 4,250 | 11 | 55 | 27,020 | 54,700 | 224 | 337 | 10 |
| Kingston Coal Company, | 731,517.09 | 12,871.00 | 17,602.13 | 701,043.16 | 155.25 | 2,358 | 5 | 19 | 21,249 | 9,450 | 138 | 272 | 3 |
| Delaware, Lackawanna and Western Railroad Co. | 499,951.05 | 100,245.00 | 6,056.07 | 393,649.18 | 129.83 | 1,941 | 5 | 37 | 13,701 | 25,100 | 80 | 205 | 3 |
| Lehigh Valley Coal Company, | 349,366.16 | 21,318.00 | 40,492.15 | 287,556.01 | 114.17 | 1,361 | 4 | 7 | 8,217 | 5,605 | 57 | 118 | 3 |
| Red Ash Coal Company, | 209,958.12 | 10,488.00 | 2,724.00 | 196,746.12 | 100.05 | 732 | .... | 4 | 6,570 | 500 | 23 | 57 | 1 |
| Parrish Coal Company, | 293,589.00 | 21,432.00 | 7,429.15 | 264,727.05 | 142.50 | 1,172 | 6 | 13 | 8,912 | 16,950 | 35 | 109 | .... |
| Miscellaneous coal companies, | 1,091,093.14 | 81,701.09 | 28,387.14 | 981,004.11 | 159.84 | 3,452 | 7 | 48 | 30,479 | 31,380 | 128 | 253 | .... |
| Grand total, | 7,457,418.13 | 665,178.09 | 226,387.13 | 6,565,852.11 | *133.92 | 25,650 | 60 | 269 | 199,503 | †259,310 | 1,186 | 2,531 | 31 |

* Average.
† There were 57,350 pounds of dynamite used by private contractors in sinking shafts and driving rock tunnels, making the total dynamite used 316,660 lbs.

TABLE No. 3.—Showing the Number of each Class of Employes at each Colliery in the Fourth Anthracite District, during the Year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| **Lehigh and Wilkes-Barre Coal Co.** | | | | | | | | | | | | | | | | |
| Hollenback No. 2, | 1 | 8 | 198 | 57 | 45 | 24 | 51 | 384 | 1 | 5 | 17 | 129 | 75 | 1 | 228 | 612 |
| Empire No. 4, | 1 | 7 | 136 | 86 | 26 | 14 | 75 | 345 | 1 | 3 | 16 | 111 | 48 | 3 | 182 | 527 |
| South Wilkes-Barre Nos. 3 and 5, | 1 | 9 | 33 | 46 | 20 | 12 | 171 | 292 | 1 | 3 | 19 | 133 | 49 | 1 | 206 | 498 |
| Stanton No. 7, | 1 | 7 | 180 | 138 | 62 | 30 | 51 | 469 | 1 | 4 | 22 | 185 | 69 | 3 | 284 | 753 |
| Maxwell No. 20, | 1 | 6 | 256 | 256 | 43 | 60 | 66 | 688 | 1 | 5 | 10 | 122 | 119 | 3 | 260 | 948 |
| Sugar Notch No. 9, | 1 | 5 | 167 | 114 | 36 | 34 | 79 | 436 | 1 | 5 | 14 | 91 | 55 | 2 | 168 | 604 |
| Lance No. 11, | 1 | 7 | 185 | 180 | 92 | 48 | 74 | 587 | 1 | 5 | 20 | 130 | 50 | 2 | 208 | 795 |
| Nottingham No. 15, | 1 | 6 | 115 | 100 | 33 | 6 | 59 | 320 | 1 | 5 | 25 | 83 | 61 | 2 | 177 | 497 |
| Reynolds No. 16, | 1 | 3 | 129 | 127 | 53 | 27 | 56 | 396 | 1 | 5 | 10 | 89 | 55 | 2 | 162 | 558 |
| Wanamie Nos. 18 and 19, | 1 | 5 | 188 | 140 | 39 | 29 | 36 | 438 | 1 | 6 | 19 | 100 | 63 | 1 | 190 | 628 |
| Total, | 10 | 63 | 1,587 | 1,244 | 449 | 284 | 718 | 4,355 | 10 | 46 | 172 | 1,173 | 644 | 20 | 2,065 | 6,420 |
| **Delaware and Hudson Canal Co.** | | | | | | | | | | | | | | | | |
| Baltimore Tunnel, | 1 | 2 | 86 | 95 | 61 | 6 | 41 | 292 | 1 | 6 | 15 | 98 | 44 | 1 | 165 | 457 |
| Baltimore Shaft No. 2, | 1 | 2 | 73 | 91 | 60 | 6 | 100 | 333 | 1 | 7 | 19 | 101 | 38 | 1 | 167 | 500 |
| Baltimore Shaft No. 3, | 1 | 3 | 118 | 118 | 53 | 21 | 50 | 364 | 1 | 6 | 13 | 97 | 44 | 1 | 162 | 526 |
| Conyngham, | 1 | 5 | 43 | 53 | 28 | 18 | 62 | 210 | 1 | 5 | 17 | 100 | 44 | 1 | 168 | 378 |
| Boston, | 1 | 1 | 64 | 64 | 18 | 9 | 32 | 189 | 1 | 5 | 11 | 64 | 41 | 2 | 124 | 313 |
| Plymouth No. 2, | 1 | 2 | 29 | 40 | 18 | 2 | 38 | 130 | 1 | 5 | 12 | 53 | 37 | 2 | 110 | 240 |
| Plymouth No. 3, | 1 | 2 | 144 | 146 | 62 | 29 | 52 | 436 | 1 | 7 | 16 | 72 | 30 | 2 | 128 | 564 |
| Plymouth No. 4, | 1 | 2 | 98 | 113 | 53 | 15 | 55 | 337 | 1 | 4 | 11 | 67 | 34 | 2 | 119 | 456 |
| Plymouth No. 5, | 1 | 2 | 129 | 131 | 60 | 13 | 52 | 388 | 1 | 6 | 17 | 66 | 50 | 2 | 142 | 530 |
| Total, | 9 | 21 | 784 | 851 | 413 | 119 | 482 | 2,679 | 9 | 51 | 131 | 718 | 362 | 14 | 1,285 | 3,964 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Susquehanna Coal Co.** | | | | | | | | | | | | | | | | |
| Shaft No. 1, breaker No. 7, | 2 | 13 | 309 | 540 | 138 | 62 | 140 | 1,204 | 1 | 10 | 27 | 161 | 118 | 2 | 319 | 1,523 |
| Shaft No. 2, breaker No. 5, | 2 | 13 | 310 | 560 | 138 | 66 | 124 | 1,213 | 1 | 22 | 33 | 121 | 138 | 2 | 317 | 1,530 |
| Slope No. 4, breaker No. 5, | | | | | | | | | | | | | | | | |
| Shaft No. 6, breaker No. 6, | 3 | 10 | 345 | 300 | 120 | 31 | 105 | 914 | 1 | 9 | 22 | 144 | 106 | 1 | 283 | 1,197 |
| Slope No. 6, breaker No. 6, | | | | | | | | | | | | | | | | |
| Tunnel No. 6, breaker No. 6, | | | | | | | | | | | | | | | | |
| Total, | 7 | 36 | 964 | 1,400 | 396 | 159 | 369 | 3,331 | 3 | 41 | 82 | 426 | 362 | 5 | 919 | 4,250 |
| **Kingston Coal Company.** | | | | | | | | | | | | | | | | |
| Shafts Nos. 1 and 4, | 4 | 5 | 206 | 160 | 84 | 23 | 94 | 576 | 2 | 12 | 20 | 262 | 81 | 8 | 385 | 961 |
| Shafts Nos. 2 and 3, | 4 | 2 | 236 | 209 | 92 | 55 | 73 | 671 | 2 | 21 | 15 | 218 | 84 | 3 | 343 | 1,014 |
| Gaylord Shaft and Slope, | 1 | ..... | 85 | 55 | 34 | 16 | 24 | 215 | 1 | 3 | 7 | 100 | 56 | 1 | 168 | 383 |
| Total, | 9 | 7 | 527 | 424 | 210 | 94 | 191 | 1,462 | 5 | 36 | 42 | 580 | 221 | 12 | 896 | 2,358 |
| **Delaware, Lacka. & Western R. R. Co.** | | | | | | | | | | | | | | | | |
| Avondale, | 1 | 3 | 84 | 84 | 24 | 7 | 52 | 255 | 1 | 6 | 23 | 68 | 51 | 1 | 150 | 405 |
| Woodward Nos. 1 and 2, | 3 | 5 | 165 | 187 | 77 | 44 | 80 | 561 | 2 | 11 | 19 | 142 | 77 | 2 | 253 | 814 |
| Bliss and Hanover Tunnel, | 2 | 2 | 90 | 120 | 29 | 9 | 46 | 298 | 1 | 8 | 15 | 170 | 71 | 2 | 267 | 565 |
| Auchincloss Nos. 1 and 2, | 1 | 2 | 26 | 40 | ..... | ..... | 45 | 114 | 1 | 4 | 10 | ..... | 28 | ..... | 43 | 157 |
| Total, | 7 | 12 | 365 | 431 | 130 | 60 | 223 | 1,228 | 5 | 29 | 67 | 380 | 227 | 5 | 713 | 1,941 |
| **Lehigh Valley Coal Co.** | | | | | | | | | | | | | | | | |
| Dorrance, | 2 | 5 | 159 | 180 | 58 | 15 | 59 | 478 | 1 | 13 | 16 | 67 | 106 | 5 | 208 | 686 |
| Franklin, | 2 | 2 | 165 | 160 | 53 | 19 | 50 | 451 | 1 | 13 | 22 | 85 | 101 | 2 | 224 | 675 |
| Total, | 4 | 7 | 324 | 340 | 111 | 34 | 109 | 929 | 2 | 26 | 38 | 152 | 207 | 7 | 432 | 1,361 |
| **Red Ash Coal Co.** | | | | | | | | | | | | | | | | |
| Red Ash No. 1, | 1 | 1 | 80 | 81 | 30 | 8 | 16 | 217 | 1 | 4 | 4 | 52 | 45 | 2 | 108 | 325 |
| Red Ash No. 2, | 1 | ..... | 100 | 98 | 38 | 9 | 19 | 265 | 1 | 5 | 4 | 78 | 52 | 2 | 142 | 407 |
| Total, | 2 | 1 | 180 | 179 | 68 | 17 | 35 | 482 | 2 | 9 | 8 | 130 | 97 | 4 | 250 | 732 |
| **Parrish Coal Co.** | | | | | | | | | | | | | | | | |
| Parrish, | 1 | 5 | 102 | 121 | 31 | 18 | 76 | 354 | 1 | 7 | 18 | 138 | 66 | 3 | 133 | 587 |
| Buttonwood, | 1 | 5 | 127 | 132 | 39 | 33 | 66 | 403 | 1 | 4 | 11 | 116 | 47 | 3 | 182 | 585 |
| Total, | 2 | 10 | 229 | 253 | 70 | 51 | 142 | 757 | 2 | 11 | 29 | 254 | 113 | 6 | 315 | 1,172 |
| **Miscellaneous Coal Companies.** | | | | | | | | | | | | | | | | |
| Alden Coal Co., | 1 | 5 | 153 | 188 | 51 | 34 | 53 | 485 | 1 | 10 | 16 | 135 | 80 | 6 | 248 | 733 |
| Dodson Plymouth Coal Co., | 1 | 4 | 75 | 100 | 51 | 20 | 78 | 329 | 1 | 5 | 15 | 105 | 40 | 3 | 169 | 498 |
| Hadleigh Crescent Coal Mining Co., | 1 | 2 | 45 | 71 | 16 | 3 | 20 | 158 | 1 | 3 | 10 | 69 | 58 | 4 | 145 | 303 |
| West End Coal Co., | 1 | 2 | 105 | 135 | 43 | 4 | 35 | 325 | 2 | 8 | 19 | 140 | 95 | 4 | 268 | 593 |

TABLE NO. 3.—Continued.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Hillman Vein Coal Co., | 1 | 2 | 57 | 57 | 16 | 25 | 33 | 191 | 1 | 2 | 7 | 48 | 29 | 3 | 90 | 281 |
| Warrior Run, A. J. Davis, | 1 | 3 | 110 | 104 | 25 | 19 | 33 | 295 | 1 | 5 | 11 | 84 | 25 | 2 | 128 | 423 |
| Lee Mellville Coal Co., | 1 | 1 | 55 | 45 | 19 | 6 | 14 | 141 | 1 | 3 | 9 | 76 | 14 | 1 | 104 | 245 |
| Chauncey, Reynolds & Moyer Coal Co., | 1 | 1 | 78 | 80 | 32 | 12 | 6 | 210 | 1 | 4 | 3 | 80 | 35 | 3 | 126 | 336 |
| Reynolds & Moyer Coal Co. Washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 3 | ..... | 15 | 1 | 21 | 21 |
| Wyoming Coal Co. Washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 4 | 2 | 2 | 10 | 19 | 19 |
| Total, | 8 | 20 | 678 | 780 | 253 | 123 | 272 | 2,134 | 12 | 40 | 97 | 739 | 393 | 37 | 1,318 | 3,452 |

Recapitulation. TABLE No. 3.—Continued.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Lehigh and Wilkes-Barre Coal Co., | 10 | 63 | 1,587 | 1,244 | 449 | 284 | 718 | 4,355 | 10 | 46 | 172 | 1,173 | 644 | 20 | 2,065 | 6,420 |
| Delaware and Hudson Canal Co., | 9 | 21 | 784 | 851 | 413 | 119 | 482 | 2,679 | 9 | 51 | 131 | 718 | 362 | 14 | 1,285 | 3,964 |
| Susquehanna Coal Co., | 7 | 36 | 964 | 1,400 | 396 | 159 | 369 | 3,331 | 3 | 41 | 82 | 426 | 362 | 5 | 919 | 4,250 |
| Kingston Coal Co., | 9 | 7 | 527 | 424 | 210 | 94 | 191 | 1,462 | 5 | 36 | 42 | 580 | 221 | 12 | 896 | 2,358 |
| Delaware, Lacka. & Western R. R. Co., | 7 | 12 | 365 | 431 | 130 | 60 | 223 | 1,228 | 5 | 29 | 67 | 380 | 227 | 5 | 713 | 1,941 |
| Lehigh Valley Coal Co., | 4 | 7 | 324 | 340 | 111 | 34 | 109 | 929 | 2 | 26 | 38 | 152 | 207 | 7 | 432 | 1,361 |
| Red Ash Coal Co., | 2 | 1 | 180 | 179 | 68 | 17 | 35 | 482 | 2 | 9 | 8 | 130 | 97 | 4 | 250 | 732 |
| Parrish Coal Co., | 2 | 10 | 229 | 253 | 70 | 51 | 142 | 757 | 2 | 11 | 29 | 254 | 113 | 6 | 315 | 1,172 |
| Miscellaneous coal companies, | 8 | 20 | 678 | 780 | 253 | 123 | 272 | 2,134 | 12 | 40 | 97 | 739 | 393 | 37 | 1,318 | 3,452 |
| Grand total, | 58 | 177 | 5,638 | 5,902 | 2,100 | 941 | 2,541 | 17,357 | 50 | 289 | 666 | 4,552 | 2,626 | 110 | 8,293 | 25,650 |

TABLE No. 4.—List of Fatal Accidents that Occurred in and about the Mines of the Fourth Anthracite District, for the Year ending December 31, 1897.

| Date of accident. | No. of accident. | Name of Person. | Occupation. | Age. | Widow. | No. of orphans. | Name of Colliery. | Location—Luzerne County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|---|
| Jan. 12, | 1 | Lesley Lyons, | Shaft sinker, | 31 | 1 | 1 | Shaft No. 2, | Plymouth, | Connection of pump-rods with rocking bob broke, causing the rods and a mass of debris to fall down the shaft while they were at the bottom. Wm. Remphrey and Richard Sanders were seriously injured. Lyons was instantly killed, and Wasley died January 14. |
| 12, | 2 | William Wasley, | Shaft sinker, | 28 | 1 | 4 | Shaft No. 2, | Plymouth, | |
| 18, | 3 | Patrick Hogan, | Miner, | 30 | 1 | 2 | Maxwell No. 2, | Ashley, | Killed by a fall of slate while working in a cross-cut in his chamber. |
| 19, | 4 | Stanley Rosowoski, | Runner, | 15 | .... | .... | Breaker No. 7, | Nanticoke, | When running loaded cars at the breaker he fell under. His leg was crushed so that amputation was necessary. He died from shock January 22. |
| Feb. 5, | 5 | John H. Jones, | Miner, | 56 | 1 | 4 | Shaft No. 2, | Nanticoke, | Instantly killed by a fall of slate from roof at face of breast in the Lee seam. |
| 12, | 6 | John Burdoskie, | Miner, | 29 | .... | .... | Stanton, | Wilkes-Barre, | Face and hands burned by an explosion of gas. Died from the effects Feb. 18. |
| 13, | 7 | Arthur Morgan, | Miner, | 48 | 1 | 2 | Dodson, | Plymouth, | Killed by a blast when he was approaching, thinking the squib had "missed." Died in a few minutes. |
| 17, | 8 | Thomas Delehanty, | Laborer, | 38 | 1 | 1 | Shaft No. 4, | Plymouth, | Fatally injured by a fall of coal from top. The miner, Thos. O'Keefe, was injured by same fall. Delehanty died on the way out of the mine. |
| 17, | 9 | Thomas Owens, | Miner, | 38 | 1 | 6 | Dorrance, | Wilkes-Barre, | Cut on head by piece of coal falling in a breast. Died at the hospital shortly after. |
| 18, | 10 | Stanis Hawanetz, | Miner, | 36 | .... | .... | Tunnel No. 6, | Glen Lyon, | Instantly killed by a fall of top coal and slate. |
| Mar. 9, | 11 | Cornelius McHugh, | Miner, | 48 | .... | 6 | Parrish, | Plymouth, | Fatally injured by a blast when he was approaching, thinking the squib had missed. Died same day. |
| 10, | 12 | Henry Parsons, | Miner, | 44 | 1 | 1 | Woodward, | Plymouth twp., | Fatally injured by a fall of top coal when about to put props under. Died ten hours after. |
| 16, | 13 | Andrew Rosmerski, | Miner, | 45 | 1 | 5 | N. Shaft No. 1, | Nanticoke, | Fatally injured by a fall of rock from the top. Died three hours after. |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 16, | 14 | Cosmer Sprice, | Miner, | 27 | .... | .... | Chauncey, | Plymouth twp., | Severely injured by a fall of coal from top. Died March 19. |
| | 19, | 15 | Emil Splitz, | Miner, | 48 | 1 | 3 | Shaft No. 2, | Nanticoke, | Fatally injured by a premature blast in bottom rock. He was pushing dynamite into a hole when it exploded. Died eight hours after. |
| | 31, | 16 | Julius Barry, | Door tender, | 15 | .... | .... | Shaft No. 5, | Plymouth, | Fatally injured by having been crushed between a car and door. Died April 7. |
| April | 5, | 17 | Howard Morgan, | Runner, | 19 | .... | .... | Shaft No. 4, | Edwardsville, | Fatally injured; he fell under a trip of cars on slope while riding on them in violation of the law. Died in one hour. |
| | 23, | 18 | Patrick Sovelin, | Laborer, | 26 | .... | .... | Shaft No. 2, | Wilkes-Barre twp., | Fatally injured by a fall of coal at face of gangway. Died the same day. |
| | 28, | 19 | Paul Begos, | Laborer, | 37 | .... | .... | Wanamie Drift, | Wanamie, | Killed by a fall of rock from roof in a breast. John Escelos, the miner, was slightly injured. |
| May | 5, | 20 | Bartley Kane, | Miner, | 54 | 1 | 5 | Buttonwood, | Hanover twp., | Burned by an explosion of gas. Died on May 20. |
| | 7, | 21 | Samuel Collins, | Laborer, | 26 | 1 | 2 | Auchincloss, | Hanover twp., | Both fatally burned by an explosion of gas. The gas accumulated after firing a blast. Collins went up with a safety lamp, but Kelland followed with a naked light and fired the gas. Both were taken to the Moses Taylor Hospital at Scranton. Collins died May 20; Kelland on May 22. |
| | 7, | 22 | John Kelland, | Laborer, | 44 | 1 | .... | Auchincloss, | Hanover twp., | |
| | 11, | 23 | Patrick Cunningham, | Pumpman, | 49 | 1 | 5 | Franklin, | Wilkes-Barre, | Fatally injured while boarding a car by slipping under it on the slope. Died in about four hours. |
| | 26, | 24 | Mike Hargus, | Laborer, | 23 | .... | .... | Shaft No. 3, | Edwardsdale, | Fatally injured by a fall of rock and bone at the face of gangway. Died on way to the hospital. |
| | 26, | 25 | George Ogurchok, | Laborer, | 28 | 1 | 3 | Tunnel No. 6, | Glen Lyon, | Instantly killed by a fall of rock from the roof. |
| July | 7, | 26 | Anthony Rogoes, | Miner, | 28 | .... | .... | Wanamie No. 18, | Wanamie, | Fatally injured by a fall of rock which he was prying down from the roof. Died three hours after. |
| | 13, | 27 | James Beasley, | Miner, | 56 | 1 | 2 | Hollenback, | Wilkes-Barre, | Killed by a fall of rock when standing about thirty feet back from face of breast. |
| | 15, | 28 | John Kovalski, | Laborer, | 38 | .... | .... | N. Shaft No. 1, | Nanticoke, | Instantly killed by a fall of top rock and top coal at face of breast. |
| | 23, | 29 | James Mooney, | Company laborer, | 57 | 1 | 3 | Shaft No. 2, | Plymouth, | Opened the gate and walked into the shaft at Bennett seam and fell a depth of 390 feet to the sump below the Red Ash seam. No one saw him fall and he evidently was instantly killed. |
| | 27, | 30 | Frank Bishets, | Laborer, | 52 | 1 | 6 | Dorrance, | Wilkes-Barre, | Fatally injured by rock falling from tier under the top coal in a breast. Died next day. |
| | 31, | 31 | Adam Babruda, | Laborer, | 27 | 1 | 1 | Woodward, | Plymouth twp., | Instantly killed by a fall of coal splitting from the rib. |
| Aug. | 6, | 32 | Frank Grosisky, | Headman, | 30 | 1 | .... | Shaft No. 5 breaker, | Plymouth, | Killed; stepped on false cage on top of shaft when cage was coming up and was crushed against the shaft framing. |

TABLE NO. 4.—Continued.

| Date of accident. | No. of accident. | Name of Person. | Occupation. | Age. | Widow. | No. of orphans. | Name of Colliery. | Location—Luzerne County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|---|
| Aug. 9, | 33 | Martin Holleran, .... | Miner, ..... | 66 | 1 | 8 | Stanton No. 7, ..... | Wilkes-Barre, ..... | Fatally injured by a fall of coal in a breast. Died same day. |
| 17, | 34 | Patrick Kelly, ..... | Miner, ..... | 54 | 1 | 4 | Franklin, ..... | Wilkes-Barre, ..... | Fatally injured by a blast which fired before he could get away. Died next morning. |
| 21, | 35 | John Pstraka, ..... | Laborer, ..... | 32 | 1 | 2 | Shaft No. 2, ..... | Plymouth, ..... | Killed; head caught and crushed between a car and rib. Went on the narrow side. |
| 23, | 36 | John Zarinski, ..... | Miner, ..... | 45 | 1 | 6 | West End Drift, ..... | Mocanaqua, ..... | Fatally injured by a fall of top rock at face of breast. Died two hours after. |
| 25, | 37 | James D. Williams,.. | Miner, ..... | 35 | 1 | 4 | Shaft No. 1, ..... | Edwardsdale, ..... | Asphyxiated by gas at the face of an idle airway, where he was not working. |
| Sept. 2, | 38 | James Jones, ..... | Miner, ..... | 50 | 1 | 6 | Boston, ..... | Plymouth twp., ... | Killed by a fall of top slate; had tried to pry it down but failed. |
| 7, | 39 | George Kalafut, .... | Footman, ..... | 24 | 1 | 1 | Slope No. 6,..... | Glen Lyon, ....,... | Fatally hurt by a runaway car on engine plane. The car uncoupled above him. Died same day. |
| 10, | 40 | Jacob Carbonavitch,.. | Miner, ..... | 35 | 1 | 4 | Wanamie No. 18, ..... | Wanamie, ..... | Killed by a fall of rock at face of breast when working coal loose from under it. |
| 28, | 41 | John Ashton, ..... | Laborer, ..... | 28 | 1 | .... | Alden, ..... | Alden, ..... | Instantly killed by a rush of soft coal from a vertical faulty seam of coal on tunnel. |
| Oct. 5, | 42 | Isaac Edmunds, ..... | Company laborer, . | 68 | 1 | 3 | Parrish, ..... | Plymouth, ..... | Killed by an explosion of gas in an abandoned breast. |
| 5, | 43 | Lewis R. Richards,.. | Driver boss, ..... | 29 | 1 | 2 | Parrish, ..... | Plymouth, ..... | Killed by an explosion of gas in an abandoned breast. |
| 5, | 44 | George Eddy, ..... | Driver, ..... | 22 | .... | .... | Parrish, ..... | Plymouth, ..... | Killed by an explosion of gas in an abandoned breast. |
| 23, | 45 | Daniel Benson, ..... | Miner, ..... | 24 | 1 | .... | Bliss, ..... | Hanover twp., .... | Instantly killed by a blast. It fired while he was igniting the match. |
| 27, | 46 | Charles Brosofsky, .. | Laborer, ..... | 40 | 1 | 4 | Maxwell, ..... | Ashley, ..... | Hip dislocated and leg crushed by a fall of rock. Died November 1. |
| 28, | 47 | John Selusnak, ..... | Miner, ..... | 36 | 1 | .... | No. 6 Tunnel, ..... | Glen Lyon, ..... | Instantly killed by a fall of rock from roof at face of breast. |
| 30, | 48 | William Davies, .... | Miner, ..... | 40 | 1 | 2 | Shaft No. 3, ..... | Edwardsdale, ..... | Fatally injured while returning to a blast, thinking the squib "missed." Died November 1. |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Nov. | 2, | 49 | Thomas Kelly, ..... | Miner, ..... | 36 | 1 | .... | Stanton No. 7, ..... | Wilkes-Barre, ..... | Killed by a piece of coal which he evidently pryed loose. He was alone and was not missed until next morning. When found he was lying under a large lump of coal 80 feet down from face of breast. |
| | 8, | 50 | John Matura, ..... | Laborer, ..... | 18 | .... | .... | Shaft No. 3, ..... | Edwardsdale, ..... | Killed by a fall of rock in a breast when at work with his father. |
| | 13, | 51 | John Wright, ..... | Driver, ..... | 18 | .... | .... | Shaft No. 3, ..... | Plymouth, ..... | Fatally injured by a fall of rock. |
| | 16, | 52 | Frank Venouski, .... | Laborer, ..... | 25 | .... | .... | Parrish, ..... | Plymouth, ..... | Severely burned by an explosion of gas. Died November 24. The miner, Joe Valinskie, was burned at the same time. |
| | 19, | 53 | Patrick McNellis, .. | Miner, ..... | 53 | .... | .... | Maxwell, ..... | Ashley, ..... | Fatally injured by a large lump of coal rolling down upon him. When approaching the face of a breast, pitching 30 degrees, a mass of loose coal moved down upon him. |
| | 20, | 54 | Barney Dugan, ..... | Miner, ..... | 43 | 1 | 7 | Baltimore No. 2, ..... | Wilkes-Barre twp., | Fatally injured; had gone to adjacent breast when firing a blast, when a piece of rock fell and struck him. He died four hours after. |
| Dec. | 4, | 55 | Anthony Sabanis, ... | Miner, ..... | 38 | 1 | 2 | Nottingham, ..... | Plymouth, ..... | Killed by a blast; was returning, thinking the squib had missed. |
| | 7, | 56 | Henry James, ..... | Driver, ..... | 23 | .... | .... | Shaft No. 2, ..... | Nanticoke, ..... | Fatally injured; car jumped track and crushed him against rib. Died 30 hours after. |
| | 9, | 57 | John Rushofski, .... | Laborer, ..... | 21 | .... | .... | N. Shaft No. 1, ..... | Nanticoke, ..... | Instantly killed by a fall of top rock when assisting to restand a prop. |
| | 15, | 58 | William Poppka, .... | Miner, ..... | 30 | 1 | 3 | Hillman Vein, ..... | Wilkes-Barre, ..... | Severely burned by an explosion of gas. Died December 18. |
| | 24, | 59 | John Agnew, ..... | Footman, ..... | 46 | 1 | 1 | Alden Shaft No. 2, ..... | Alden, ..... | Both instantly killed; they were descending the shaft at 12.30 midnight. Cage caught for a brief time in the ice and again broke through. The fall broke the rope and cage fell to the bottom of shaft, about 460 feet. |
| | 24, | 60 | Thomas Kennedy, .. | Footman, ..... | 23 | .... | .... | Alden Shaft No. 2, ..... | Alden, ..... | |

## Recapitulation of Fatal Accidents.

| 1897. | Causes of Fatal Accidents. | | | | | | | | Occupations of the Persons Fatally Injured. | | | | | | | | | Nationality of Injured Persons. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Explosions of fire damp. | Falls of roof and coal. | By mine cars underground. | Explosions of powder and blasts. | By falling down shafts. | By miscellaneous causes, inside. | By miscellaneous causes, outside. | Total. | Miners. | Laborers. | Drivers. | Runners. | Door tenders. | Headmen and footmen. | Slope and shaft sinkers. | Company hands. | Total. | American. | Welsh. | Irish. | English. | Polish. | Russian. | German. | Slavish. | Lithuanian. | Swedish. | Total. |
| January, | .... | 1 | .... | .... | .... | 2 | 1 | 4 | 1 | .... | .... | 1 | .... | .... | 2 | .... | 4 | 1 | .... | 1 | 1 | 1 | .... | .... | .... | .... | .... | 4 |
| February, | 1 | 4 | .... | 1 | .... | .... | .... | 6 | 5 | 1 | .... | .... | .... | .... | .... | .... | 6 | 1 | 3 | .... | .... | 1 | 1 | .... | .... | .... | .... | 6 |
| March, | .... | 3 | 1 | 2 | .... | .... | .... | 6 | 5 | .... | .... | .... | 1 | .... | .... | .... | 6 | .... | 1 | 1 | .... | 2 | .... | 1 | .... | .... | 1 | 6 |
| April, | .... | 2 | 1 | .... | .... | .... | .... | 3 | .... | 2 | .... | 1 | .... | .... | .... | .... | 3 | 1 | .... | 1 | .... | 1 | .... | .... | .... | .... | .... | 3 |
| May, | 3 | 2 | 1 | .... | .... | .... | .... | 6 | 1 | 4 | .... | .... | .... | .... | .... | 1 | 6 | .... | 1 | 2 | 1 | 2 | .... | .... | .... | .... | .... | 6 |
| June, | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| July, | .... | 5 | .... | .... | 1 | .... | .... | 6 | 2 | 3 | .... | .... | .... | .... | .... | 1 | 6 | .... | .... | 1 | 1 | 2 | .... | .... | .... | 1 | 1 | 6 |
| August, | .... | 2 | 1 | 1 | .... | 1 | 1 | 6 | 4 | 1 | .... | .... | .... | 1 | .... | .... | 6 | .... | 1 | 2 | .... | 3 | .... | .... | .... | .... | .... | 6 |
| September, | .... | 3 | 1 | .... | .... | .... | .... | 4 | 2 | 1 | .... | .... | .... | 1 | .... | .... | 4 | .... | 2 | .... | .... | 2 | .... | .... | .... | .... | .... | 4 |
| October, | 3 | 2 | .... | 2 | .... | .... | .... | 7 | 3 | 1 | 1 | .... | .... | .... | .... | 2 | 7 | 2 | 2 | .... | 1 | 1 | .... | .... | 1 | .... | .... | 7 |
| November, | 1 | 5 | .... | .... | .... | .... | .... | 6 | 3 | 2 | 1 | .... | .... | .... | .... | .... | 6 | .... | .... | 4 | .... | .... | .... | .... | 1 | 1 | .... | 6 |
| December, | 1 | 1 | 1 | 1 | 2 | .... | .... | 6 | 2 | 1 | 1 | .... | .... | 2 | .... | .... | 6 | 2 | .... | 1 | .... | .... | 1 | .... | .... | 2 | .... | 6 |
| Total, | 9 | 30 | 6 | 7 | 3 | 3 | 2 | 60 | 28 | 16 | 3 | 2 | 1 | 4 | 2 | 4 | 60 | 7 | 10 | 13 | 4 | 15 | 2 | 1 | 3 | 4 | 1 | 60 |

TABLE No. 5.—Giving number in each class, Occupation and Nationality of persons Non-Fatally Injured.

| 1897. | Causes of Non-Fatal Accidents. | | | | | | | Occupation of Injured Persons. | | | | | | | | Nationality of Injured Persons. | | | | | | | | | | Very slight injuries not included in foregoing table. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Explosions of fire damp. | Falls of roof and coal. | By mine cars in the mines. | Explosions of powder and blasts. | By miscellaneous causes, inside. | By miscellaneous causes, outside. | Total. | Miners. | Laborers. | Drivers and runners. | Door tenders. | Shaft sinkers. | Company workingmen. | Foremen and assistants. | On surface. | Total. | American. | Welsh. | English. | Irish. | Polish. | Slavish. | German. | Russian. | Scotch. | Total. | |
| January, | 6 | 8 | 1 | .... | 4 | 1 | 20 | 9 | 6 | .... | .... | 2 | 2 | .... | 1 | 20 | 1 | 1 | 3 | 5 | 3 | .... | .... | 1 | .... | 20 | 9 |
| February, | 6 | 4 | 3 | 2 | 5 | 1 | 21 | 10 | 5 | 3 | 1 | .... | 1 | .... | 1 | 21 | 6 | 2 | 3 | 1 | 6 | 2 | 1 | .... | .... | 21 | 5 |
| March, | 6 | 4 | 2 | 1 | .... | 3 | 16 | 6 | 4 | 2 | .... | .... | 1 | .... | 3 | 16 | 3 | 1 | 1 | 1 | 6 | 4 | .... | .... | .... | 16 | 3 |
| April, | 3 | 11 | 4 | .... | 1 | 2 | 21 | 10 | 5 | 1 | .... | .... | 3 | .... | 2 | 21 | 1 | 3 | 2 | 1 | 12 | .... | 1 | 1 | .... | 21 | 6 |
| May, | 2 | 6 | 2 | .... | .... | .... | 10 | 2 | 5 | 1 | .... | .... | 1 | 1 | .... | 10 | 2 | 5 | .... | .... | 3 | .... | .... | .... | .... | 10 | 3 |
| June, | .... | 4 | 3 | 1 | 3 | 3 | 14 | 6 | 1 | 3 | .... | 1 | .... | .... | 3 | 14 | 1 | 1 | .... | 3 | 5 | 2 | .... | 2 | .... | 14 | 4 |
| July, | 5 | 8 | 8 | 4 | 2 | 4 | 31 | 7 | 9 | 8 | 2 | .... | 1 | .... | 4 | 31 | 8 | 3 | 1 | 4 | 11 | 1 | 1 | 2 | .... | 31 | 3 |
| August, | 2 | 12 | 4 | 3 | 2 | .... | 23 | 12 | 8 | 2 | .... | .... | 1 | .... | .... | 23 | 2 | 4 | 4 | 2 | 7 | 2 | 1 | 1 | .... | 23 | 6 |
| September, | 6 | 11 | 2 | 3 | 9 | 5 | 36 | 15 | 12 | 3 | .... | .... | 1 | .... | 5 | 36 | 3 | 4 | 3 | 2 | 18 | 4 | 1 | 1 | .... | 36 | 3 |
| October, | 8 | 9 | 4 | 4 | 2 | 1 | 28 | 13 | 8 | 5 | 1 | .... | .... | .... | 1 | 28 | 2 | 6 | 2 | 2 | 8 | 2 | .... | 5 | 1 | 28 | 8 |
| November, | 7 | 7 | 4 | 2 | 1 | 5 | 26 | 9 | 5 | 5 | .... | .... | 2 | .... | 5 | 26 | 5 | 3 | 3 | 2 | 9 | 1 | 1 | 2 | .... | 26 | 6 |
| December, | 3 | 10 | 4 | 3 | 1 | 2 | 23 | 11 | 4 | 3 | 1 | .... | 2 | .... | 2 | 23 | 5 | 5 | 4 | .... | 3 | 4 | 1 | 1 | .... | 23 | 8 |
| Total, | 54 | 94 | 41 | 23 | 30 | 27 | 269 | 110 | 72 | 36 | 5 | 3 | 15 | 1 | 27 | 269 | 39 | 38 | 26 | 23 | 97 | 22 | 7 | 16 | 1 | 269 | 68 |

# FIFTH ANTHRACITE DISTRICT.

(LUZERNE AND CARBON COUNTIES.)

Hazleton, Pa., February 14, 1898.

Hon. James W. Latta, Secretary of Internal Affairs.

Sir: I have the honor of herewith presenting my annual report as Inspector of mines of the Fifth anthracite district, for the year ending December 31, 1897.

The quantity of coal produced during the year was 5,487,550.07 tons, which is a decrease of 384,876 tons, as compared with that of the previous year. Total shipments were 4,758,842.13 tons.

The number of lives lost in the production of this quantity of coal was thirty-three, leaving eighteen wives widows, and thirty-three children fatherless.

The number of non-fatal accidents was 114, making the total casualties in and about the mines 147.

The number of tons of coal produced per life lost was 166,289, which is the greatest quantity per life lost, in this district for the past ten years.

I feel that I can assert that the general condition of the mines will compare favorably with any other mines similarly situated.

This report contains the usual tables and descriptions of improvements, with brief notes on accidents and a detailed report of the Cranberry mine fire.

Very truly yours,
W. H. DAVIES,
Inspector of Mines.

Tons of Coal Mined During the Year 1897.

| | |
|---|---|
| A Pardee & Co., | 252,493.11 |
| Cross Creek Coal Company, | 1,057,725.19 |
| Lehigh Coal and Navigation Company, | 776,623.11 |
| Geo. B. Markle & Co., | 723,312.07 |
| Lehigh Valley Coal Company, | 684,136.19 |
| A. S. Van Wickle, | 644,651.18 |
| Calvin Pardee & Co., | 606,470.18 |
| Upper Lehigh Coal Company, | 230,539.13 |

| | |
|---|---|
| Lehigh and Wilkes-Barre Coal Company, | 42,988.13 |
| M. S. Kemmerer & Co., | 116,467.10 |
| C. M. Dodson & Co., | 198,785.00 |
| J. S. Wentz & Co., | 82,636.00 |
| Miscellaneous operations, | 70,718.08 |
| Total, | 5,487,550.07 |

Number of Fatal Accidents and Tons of Coal Mined per Life Lost.

| Name of Operator. | Number of lives lost. | Number of tons of coal mined per life lost. |
|---|---|---|
| A Pardee & Company, | 2 | 126,246 |
| The Cross Creek Coal Company, | 6 | 176,287 |
| Lehigh Coal and Navigation Company, | 1 | 776,623 |
| G. B. Markle & Company, | 3 | 241,104 |
| Lehigh Valley Coal Company, | 5 | 136,827 |
| E. S. Van Wickle, | 7 | 92,093 |
| Calvin Pardee & Company, | 2 | 303,235 |
| Upper Lehigh Coal Company, | 2 | 115,269 |
| Lehigh and Wilkes-Barre Coal Company, | | |
| M. S. Kemmerer & Company, | 1 | 116,467 |
| C. M. Dodson & Company, | 1 | 198,785 |
| John S. Wentz, | 1 | 82,636 |
| The Evans Mining Company, | 2 | 4,847 |
| Total and average, | 33 | 166,289 |

Number of Non-Fatal Accidents and Tons of Coal Mined per Person Injured.

| Name of Operator. | Number of persons injured. | Tons of coal mined per persons injured. |
|---|---|---|
| A. Pardee & Company, | 14 | 18,035 |
| The Cross Creek Coal Company, | 16 | 66,107 |
| Lehigh Coal and Navigation Company, | 8 | 97,077 |
| G. B. Markle & Company, | 12 | 60,276 |
| Lehigh Valley Coal Company, | 22 | 31,697 |
| A. S. Van Wickle, | 11 | 58,604 |
| Calvin Pardee & Company, | 19 | 31,914 |
| Upper Lehigh Coal Company, | 3 | 76,846 |
| Lehigh and Wilkes-Barre Coal Company, | 2 | 21,494 |
| M. S. Kemmerer & Company, | 2 | 58,233 |
| C. M. Dodson & Company, | 2 | 99,392 |
| John S. Wentz & Company, | 2 | 41,318 |
| The Evans Mining Company, | 1 | 9,694 |
| Total and average, | 114 | 48,136 |

Number of Fatal and Non-Fatal Accidents and Tons of Coal Mined per Accident.

| Name of Operator. | Number of accidents, fatal and non-fatal. | Tons of coal mined per fatal and non-fatal accident. |
|---|---|---|
| A. Pardee & Company, | 16 | 15,780 |
| The Cross Creek Coal Company, | 22 | 48,078 |
| Lehigh Coal and Navigation Company, | 9 | 86,291 |
| G. B. Markle & Company, | 15 | 48,220 |
| Lehigh Valley Coal Company, | 27 | 25,338 |
| A. S. Van Wickle, | 18 | 35,813 |
| Calvin Pardee & Company, | 21 | 28,879 |
| Upper Lehigh Coal Company, | 5 | 46,107 |
| Lehigh and Wilkes-Barre Coal Company, | 2 | 21,494 |
| M. S. Kemmerer & Company, | 3 | 38,822 |
| C. M. Dodson & Company, | 3 | 66,291 |
| J. S. Wentz & Company, | 3 | 27,545 |
| The Evans Mining Company, | 3 | 3,231 |
| Total and average, | 147 | 37,330 |

Comparative Statement Showing the Number of Tons of Coal Produced, Number of Fatalities, Tons of Coal Produced per Fatal Accident, Number of Persons Employed per Life Lost, and the Number of Deaths per Thousand Employed for the past Ten years.

| Years. | Production of coal in tons. | Number of fatal accidents. | Tons of coal produced per fatal accident. | Number of persons employed. | Number of persons employed per life lost. | Number of deaths per thousand persons employed. |
|---|---|---|---|---|---|---|
| 1888, | 4,892,514 | 32 | 152,891 | 14,448 | 451.50 | 2,215 |
| 1889, | 5,655,196 | 46 | 122,939 | 14,686 | 319.26 | 3,200 |
| 1890, | 5,776,699 | 52 | 111,090 | 14,421 | 277.33 | 3,606 |
| 1891, | 5,803,964 | 53 | 109,509 | 14,961 | 282.28 | 3,548 |
| 1892, | 5,842,721 | 48 | 121,725 | 16,277 | 339.19 | 2,949 |
| 1893, | 6,239,068 | 58 | 107,570 | 17,540 | 302.48 | 3,307 |
| 1894, | 6,132,627 | 58 | 105,735 | 18,361 | 316.57 | 3,103 |
| 1895, | 6,590,966 | 52 | 126,750 | 18,457 | 355.13 | 3,461 |
| 1896, | 5,8 2,427 | 42 | 139,819 | 17,568 | 418.28 | 2,470 |
| 1897, | 5,487,550 | 33 | 166,289 | 17,119 | 518.73 | 1,941 |
| | 58,293,732 | 474 | 126,431 | 163,848 | 358.07 | 2,980 |

Nationality of Persons Fatally and Non-Fatally Injured.

| Nature of Accident. | Hungarian. | Polish. | Irish. | English. | Welsh. | German. | American. | Austrian. | Italian. | French. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Fatal accidents, | 9 | 5 | 7 | 1 | ..... | 2 | 5 | 4 | ..... | ..... | 33 |
| Non-fatal accidents, | 33 | 18 | 12 | 3 | 5 | 10 | 18 | 11 | 3 | 1 | 114 |
| Total, | 42 | 23 | 19 | 4 | 5 | 12 | 23 | 15 | 3 | 1 | 147 |

Table of Comparison, Showing Number of Different Causes of Fatal Accidents. in the Fifth Anthracite Districts during the past Ten Years.

| Cause of Accident. | 1888. | 1889. | 1890. | 1891. | 1892. | 1893. | 1894. | 1895. | 1896. | 1897. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| By water from old workings, .. | ..... | ..... | ..... | 9 | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| Asphyxiated by gases, etc., ... | ..... | ..... | ..... | 6 | ..... | ..... | ..... | ..... | ..... | 5 | 11 |
| By explosion of gas, ..... | ..... | 1 | 1 | ..... | ..... | 1 | 1 | 1 | ..... | ..... | 5 |
| By falls of coal, rock and clay, | 14 | 22 | 19 | 16 | 25 | 18 | 21 | 24 | 18 | 9 | 186 |
| By cars inside and on the surface, ..... | 6 | 11 | 19 | 6 | 15 | 15 | 15 | 13 | 11 | 10 | 121 |
| By blasts and powder explosions, ..... | 4 | 4 | 1 | 4 | 2 | 11 | 15 | 7 | 2 | 2 | 52 |
| By machinery inside and on the surface, ..... | 2 | ..... | 7 | 5 | 3 | 4 | 3 | 2 | 4 | 2 | 32 |
| By boiler explosions, ..... | ..... | 4 | ..... | 1 | ..... | ..... | ..... | 1 | 3 | ..... | 9 |
| By miscellaneous causes, inside and on the surface, ..... | 6 | 4 | 5 | 6 | 3 | 9 | 3 | 4 | 4 | 5 | 49 |
| Total, ..... | 32 | 46 | 56 | 53 | 48 | 58 | 58 | 52 | 42 | 33 | 474 |

## Recapitulation of Fatal Accidents as per Table No. 4.

| Occupation. | Number killed. | Per cent. | Nationality. | Number killed. | Per cent. | Causes of Accidents. | Number killed. | Per cent. |
|---|---|---|---|---|---|---|---|---|
| Foreman, | 1 | .03 | Americans, | 5 | 15.15 | By asphyxiations, | 5 | 15.15 |
| Miners, | 11 | 33.33 | English, | 1 | 3.03 | By mine cars in the mines, | 5 | 15.15 |
| Miners and laborers, | 4 | 12.12 | Germans, | 2 | 6.06 | By falls of rock, coal and clay, | 9 | 29.27 |
| Drivers and runners, | 2 | 6.06 | Irish, | 7 | 21.21 | By blasts on the stripping, | 2 | 6.06 |
| Other company men, | 4 | 12.12 | Polish, | 5 | 15.15 | By machinery, | 2 | 6.06 |
| Outside laborers, | 7 | 21.21 | Hungarians, | 9 | 27.27 | By mine and railroad cars, outside, | 5 | 15.15 |
| Watchmen, | 1 | 3.03 | Austrians, | 4 | 12.12 | From miscellaneous causes inside and on the surface, | 5 | 15.15 |
| Chute tender, | 1 | 3.03 | | | | | | |
| Carpenters, | 2 | 6.06 | | | | | | |
| | 33 | 100.00 | | 33 | 100.00 | | 33 | 100.00 |

Widows, 18: orphans, 33.
Accident No. 19, in Table No. 4, is not included in this recapitulation.

9—10—97

## Recapitulation of Non-Fatal Accidents as per Table No. 5.

| Occupation. | Number injured. | Per cent. | Nationality. | Number injured. | Per cent. | Causes of Accidents. | Number injured. | Per cent. |
|---|---|---|---|---|---|---|---|---|
| Mine foreman, | 3 | 2.63 | Americans, | 18 | 15.79 | By explosions of fire damp, | 11 | 9.65 |
| Miners, | 48 | 42.10 | Welsh, | 5 | 4.39 | By falls of rock, slate and coal in the mines, | 27 | 23.69 |
| Miners' laborers, | 22 | 19.30 | English, | 3 | 2.63 | By falls of rock, coal and clay on stripping, | 3 | 2.63 |
| Drivers and runners, | 7 | 6.14 | Germans, | 10 | 8.78 | By blasts in the mines, | 5 | 4.39 |
| Door tenders, | 2 | 1.76 | French, | 1 | .88 | By blasts on the stripping, | 5 | 4.39 |
| Other company men, | 4 | 3.50 | Irish, | 12 | 10.51 | By mine cars in the mines, | 13 | 11.40 |
| Outside drivers, | 9 | 7.90 | Polish, | 18 | 15.79 | By mine and railroad cars outside, | 10 | 8.78 |
| Outside laborers, | 14 | 12.28 | Hungarians, | 33 | 28.95 | By explosion of powder in the mines, | 4 | 3.50 |
| Slate pickers, | 3 | 2.63 | Austrians, | 11 | 9.65 | By explosion of powder on the stripping, | 1 | .88 |
| Engineers, | 2 | 1.76 | Italian, | 3 | 2.63 | By machinery, | 4 | 3.50 |
| | | | | | | From miscellaneous causes inside and on the surface, | 31 | 27.19 |
| | 114 | 100.00 | | 114 | 100.00 | | 114 | 100.00 |

## Examination of Applicants for Mine Foreman and Assistant Mine Foreman's Certificates.

The annual examination of applicants for certificates of qualification for mine foreman and assistant mine foreman, was held in the Pine street school building, Hazleton, on July 8 and 9, 1897.

The board of examiners was:

W. H. Davies, Inspector.

A. C. Leisenring, superintendent.

Robert Munroe and Patrick Kelly, miners.

The following persons, having passed a satisfactory examination, were recommended and received certificates:

### Mine Foremen.

J. J. Stickler, Lansford.
John Brisbin, Eckley,
Dan. J. Boyle, Freeland.
William Mealing, Upper Lehigh.
John Panco, Harwood.
John Hurley, Upper Lehigh.
David M. Thomas, Beaver Brook.
Fred. Lesser, Upper Lehigh.
William Sachs, Gowan.
John J. Campbell, Hazleton.
J. Harlor, Hazleton.
Bernard McCauley, Oneida.

### Assistant Foremen.

Mark Rourke, Harwood.
Matthew Morris, Lansford.
Neal McHugh, Eckley.
Henry Fox, Nuremburg.
Hugh McGorry, Nesquehoning.
Michael Smith, Nesquehoning.

## Colliery Improvements Made During the Year 1897.

### Coleraine Colliery, Operated by A. S. Van Wickle.

A slope on the Buck Mountain seam was sunk to the basin; a second opening was driven as far as the land line, where a shaft is being sunk, the depth of which, when completed, will be 330 feet.

A 16 foot fan is to be erected for the purpose of improving the ventilation in this seam, also for ventilating the Ganna workings.

A tunnel is being driven from the Buck Mountain seam to cut the Ganna.

A 12 inch Blake pump was placed at the bottom of the Buck Mountain slope.

The improved Stockton valve has been placed on all the pumps at this colliery which increases their capacity one-third.

A new return tubular boiler was added to the boiler plant, capacity 150 horse power. This boiler was made by the Vulcan Iron Works at Wilkes-Barre and is considered the best yet introduced into this region.

Two new Vulcan mine locomotives were added to the motive power at this colliery.

The railroad from old No. 1 to No. 2 has been relaid with 60 pound rails.

## Evans Colliery.

A. S. Van Wickle purchased the Evans Colliery, April 10, 1897, and improvements were at once made in all directions.

A large reservoir was built for the storage of water at the mine. A new line of water pipes was laid, also a line of steam pipe was laid from the boilers to the pumping station for a distance of 3,960 feet for the purpose of doing away with the stationary boiler at the pumping station.

A new railroad was built connecting Evans Colliery with Coleraine, about two and one-half miles in length, laid with 60 pound rails. A trestling 900 feet long was built, ranging from 20 to 39 feet high to cross the ravine and Lehigh Valley Railroad above grade. This railroad was completed and coal taken to Coleraine breaker from the Evans Colliery on July 6, 1897.

In the meantime the old breaker at Evans Colliery was leased to Kennedy & Warner as a washery, who ran this place successfully until the breaker was destroyed by fire on September 21, 1897. The fire was discovered about half past six in the evening, and although every effort was made to extinguish the flames, it was totally destroyed. This fire was of incendiary origin beyond question, as there had been no fire or even steam in use at the breaker for more than a week before the fire took place, but the perpetrators having escaped, the cause consequently is a mystery.

The plane connecting the breaker with the slope was also destroyed by fire. As soon as the debris was cleared away, the work of reconstruction of plane and pockets was commenced, so as to resume operations at the Evans Colliery, and this colliery commenced operation again on October 18, 1897, by shipping the coal to Coleraine breaker.

The pumps were repaired and a 15 inch Stockton plunger pump was added to the pumping plant at this colliery, the capacity of which is 2,000 gallons per minute.

The boiler plant was also increased by the addition of a Vulcan return tubular boiler with a capacity of 150 horse power.

An artesian well 550 feet deep was bored, which yields sufficient water to supply the colliery.

A 15 foot diameter fan was put in operation with good results.

A shaft 6x9 feet was sunk, connecting No. 1 and No. 2 seams, also an airway has been driven to connect these openings with the fan which has greatly improved the ventilation at this colliery.

At present there are two tunnels being driven at the Evans Colliery which it is hoped will yield coal enough to add many years to the life of this colliery.

## G. B. Markle & Co.

Highland No. 2.—All the coal has been won from the strippings known as Highland No. 3, and the strippings have been abandoned.

Highland No. 5.—A 250 horse power Cahall boiler using waste heat gases from 15 cylinder boilers has been erected and new boiler house built.

Sturtevant fan blower system has been installed and boiler house enlarged.

A 50,000 gallon circular railroad tank has been erected and an auxiliary slate drag line added.

A tunnel from the bottom level to connect with old Pink Ash workings at the second lift gangway was driven to the point at which it became necessary to draw off the water, which was done by means of diamond drill holes.

The tunnel from the second lift to connect south basin from western end, driven in 1896, has been extended to connect with basin south. A tunnel is now being driven from the bottom gangway west to connect with the north pitch of vein in basin south.

The 12 inch bore hole for pump column referred to in 1896 has been completed and cased.

By permission of the Cross Creek Coal Company, an airway to the surface has been opened on the south side of the tunnel D. basin.

Jeddo No. 4.—Twenty-four cylinder boilers have been removed and in place thereof, nine Erie city economic boilers of 100 horse power each have been installed and new boiler house completed.

Sturtevant fan system and Warren Webster hot water heater of 1,250 horse power have been installed.

A 50,000 gallon circular railroad tank has been erected, and a new reservoir of about 800,000 gallon capacity completed.

Culm is being run into the cave-ins south of breaker to fill up parts of old workings.

Five short tunnels have been driven from the Mammoth to the Wharton vein.

Two "Green Ridge slate pickers" have been put in Jeddo No. 4 breaker for cleaning stove coal and an auxiliary slate drag line has been added.

Ebervale.—Carpenter and blacksmith shops have been built, also a wash house for the accommodation of miners.

A stripping known as "Stripping O," has been opened on the Mammoth vein on the north side of the property, and it is now being stripped to the west.

The South Side drainage canal which ended with the west end of the Jeddo property line is now being extended along the south of Ebervale to connect with the south side drainage canal on the Harleigh property.

First Lift gangway, north side, has been opened from No. 1 slope to west end of property.

A 60 ton Bucyrus shovel and two 6-wheel 25 ton Baldwin locomotives have been added to the stripping plant.

Jeddo.—A reservoir of about 2,500,000 gallons capacity at Jeddo South Side water works was completed in June.

A Rand Drill Co. air compressor and air pump connected with the 6 inch bore hole reported in 1896 have been installed and an additional boiler added to the boiler plant at this place.

A six inch pipe line was laid from the north side of East End stripping to the new pumping station at Jeddo.

A twin pumping plant for pumping water to all collieries on the Jeddo property has been erected, consisting of two 100 horse power economic boilers and two compound pumps of the Jeanesville Iron Works pattern, and a new pump and boiler house has been erected and necessary pipes laid to lead to mains for supply.

The Old Slope pumping station has been abandoned.

## Upper Lehigh Coal Company.

A new locomotive was purchased to handle the increased tonnage from the several strippings.

At No. 2 boiler plant a 6 foot Sturtevant blower fan was installed which is operated by a 12x12 inch horizontal engine.

Although the coal is washed, there is at times considerable dust generated about the steamboat screen, and to obviate this as far as possible, an air stack has been placed through the roof of the breaker to the rolls.

At the eastern end of the property an 8 inch artesian well was sunk 534 feet and a 10x5x3 inch lifting pump put down 315 feet.

In No. 2 Slope a rock tunnel has been driven 210 feet to connect with No. 1 slope for the purpose of drainage; this relieves the pumps in No. 1 at present and will eventually do away with them entirely.

Pump House, Hazleton Shaft Colliery.

At these strippings 173,180 yards of earth and rock were excavated during the year.

## Lehigh Valley Coal Company, Lehigh Division.

Hazleton Colliery No. 1.—Completion of a new 20 inch diameter reversible fan, connected by shaft to the Wharton vein, south dip. The whole structure is of brick, iron and stone. This fan has dispensed with the old fan and has satisfactorily established a permanent means of ventilation.

A tunnel has been started southward from the third lift and is being extended southward across the No. 1 basin into the Hazleton No. 6 basin with a view of proving and developing all the overlying veins which heretofore have not been worked in this region.

New stables in rock have been made at the Fifth lift and a tunnel has been started on this same level southward to the overlying veins.

The strippings at this colliery have been extensively increased during the past year.

A number of improvements were also made to the breaker.

Spring Brook Colliery.—A new slope has been sunk inside on the Mammoth vein from the third lift to the basin.

A new slope has been sunk on the Buck Mountain vein from the shaft level to the basin.

New rolls and other improvements have been made to the breaker and boiler house.

Spring Mountain No. 4 Colliery.—This breaker was burned on May 10, but the cause is shrouded in mystery, as every care was taken by the company to prevent fires, and the breaker had been idle the day previous.

The coal from this colliery is now being prepared in the Spring Mountain No. 1 breaker.

Hazleton Shaft Colliery.—The work of sinking this shaft was resumed in the latter part of 1897 and is now down to the proposed first landing.

The centralization of the pumping operations as mentioned in my last report was completed in August, one year after the commencement, since which time all the water made on the Hazleton property is being handled at this one pumping station. The work was of a complex nature, requiring considerable thought and care, both from an engineering and practical mining standpoint.

The slope was completed in the Wharton vein to an elevation of 1,084 feet and gangways were turned off east and west and two large pump houses built to the north of these gangways in rock. The roof of the pump houses is formed of "I" beams covered with "T" rails separated by hard brick. The space between the "T" rails

and roof is filled solid with concrete. The foot rests on the "I" beams are on a bevel ledge of solid rock. The side of the pump houses were moiled.

The sketch attached gives a fair illustration of this work.

A shaft connects the back end of the pump houses with the column ways. Two column and steam ways were driven from the pump houses to a point midway to the third lift, where they connect with the slope by a slant heading and the steam way is thence driven up near to the crop of the vein where a shaft connects the slope to the strippings for the discharge of the column pipe into a flume, from whence the water flows to the creek.

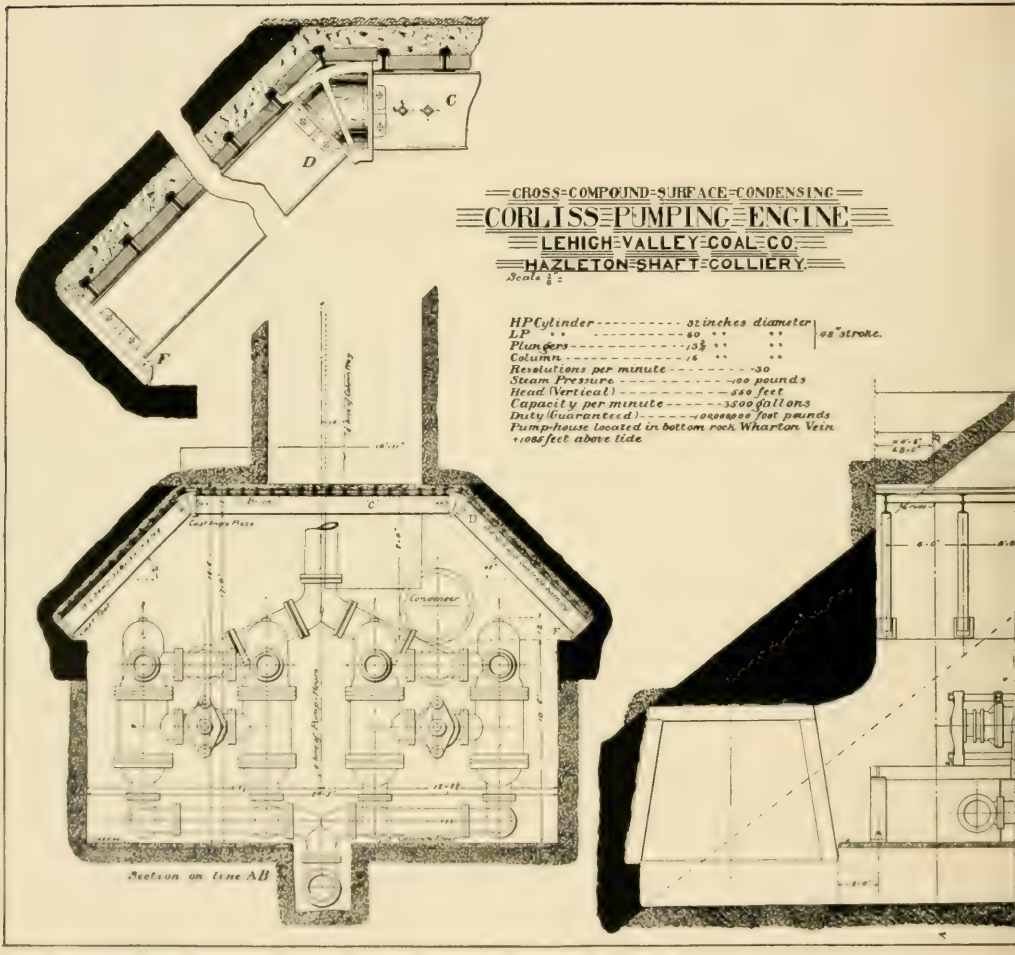
The pumping engines, two in number, are of the Cross Compound Condensing type, with Corliss valve gear, built by the Dickson Manufacturing Company. High pressure cylinder 32 inch diameter, low pressure cylinder 60 inch diameter, stroke 48 inches, plunger $13\frac{3}{4}$ inches diameter, lift 550 feet. Each pump has a capacity of 3,500 gallons. The water chambers are all lead lined. The poles are of phosphor bronze. All the elbows of the columns are lead lined and the balance of the column pipe wood lined, showing that great care has been taken to insure the permanency of this work.

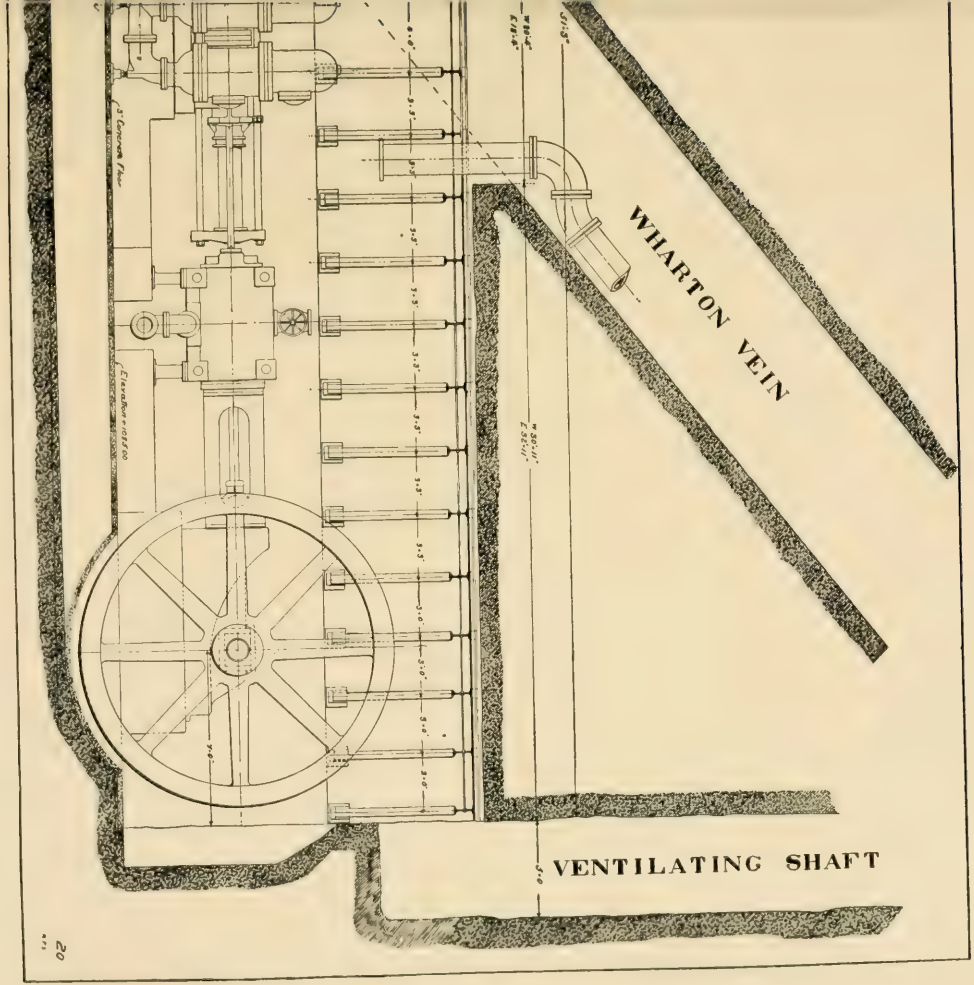
While the pump houses were being made, a tunnel was driven southward and connected into the anticlinal of the Hazleton No. 5 Mammoth workings, and a heading driven across the face into the last breast at the eastern end of these workings. A dam of brick and cement was then built in this tunnel between the Wharton and Mammoth vein, in the walls of which were placed two 17 inch lead lined pipes, also a tapered man hole with movable wooden plug. A suction box was then built the entire length of the tunnel to the anticlinal of the No. 5 breast, where it was weighted and anchored to the rib and bottom.

On the north end of the suction pipes, which are lined in the same manner as the column, were placed two large 16 inch lead lined plug cocks built by the Eynon-Evans Manufacturing Company. These plugs are located just outside the dam and are fitted with by-pass valve for equalizing the pressure, and with conical stem and with the powerful gear can be very easily opened or closed under high pressure without detriment to the seating. These plug cocks are used for the purpose of cutting off the delivery of water from back of the dam to the pumps whenever it may become necessary.

The arrangement outlined permits the water to rise to a vertical height of 150 feet above the level of the pumps without danger of flooding it. The old workings of the Mammoth being thus converted into a sump nearly three miles in length.

After this work was completed, diamond drills were taken through the man hole in the dam to the east rib of breast No. 40 and a series


CROSS-COMPOUND-SURFACE-CONDENSING
CORLISS-PUMPING-ENGINE
LEHIGH-VALLEY-COAL-CO.
HAZLETON-SHAFT-COLLIERY.
Scale 1/8"=1'
HP Cylinder ---------- 32 inches diameter
LP " ---------- 60 " "
Plungers ---------- 13 3/4 " "
Column ---------- 16 " "
98" stroke.
Revolutions per minute ---------- 30
Steam Pressure ---------- 100 pounds
Head (Vertical) ---------- 600 feet
Capacity per minute ---------- 3500 gallons
Duty (guaranteed) ---------- 70000000 foot pounds
Pump-house located in bottom rock Wharton Vein
1085 feet above tide
Section on line AB
Condenser
C
D
F


WHARTON VEIN
VENTILATING SHAFT

of six holes were bored through the pillar, tapping the old Diamond workings. In this latter work the greatest care was used, and casing pipe was first sunk, cemented and held in place by brace anchor bolts, and on the end was placed a gate valve through which the boring was completed through the pillar into the water. The drawing of the rods under this heavy pressure was under the personal supervision of the mine Inspector and the local representatives of the coal company. After the holes were finished the valves were opened and the tapping of this large body of water, standing 185 feet above the tunnel level, was successfully completed.

The water has since receded in the Diamond workings about 60 feet.

The intention is to remove this water down to the depth of the suction box above mentioned, which would bring the water to a point below the contemplated third lift of the new shaft.

To provide steam for all this work, a boiler plant of 2,100 horse power, Lehigh Valley standard tubular boilers has been erected and housed in a brick building. The plant is complete with forced and induced draught, blowing and suction fans and double set of fuel economizers with air conduits and arrangement for the guidance of the gases whether direct or for economical use of the same.

The plant is very complete and presents for the consideration of those interested, a standard for economics in modern mining.

## Remarks on Fatal Accidents.

I deem it necessary herewith to briefly review the fatal accidents and their causes, but I am pleased to state that fewer fatal accidents occurred in this district during the year 1897, than during any previous year since 1888.

By referring to table No. 4 of this report it will be seen that twenty persons lost their lives inside of the mines of this district and of this number eight, or 40 per cent., were from falls of coal, rock or slate.

Of the five persons who lost their lives from asphyxiation, one only could be termed an accident, as the others could have been averted had the victims themselves used care and proper judgment.

Of the five persons who lost their lives by mine cars, three only could be termed accidents, while the other two could have been averted had it not been for the extreme recklessness of the victims themselves.

Of the two miscellaneous accidents that occurred in the mines, one was an unavoidable accident, while the other could have been prevented by ordinary care and forethought on the part of the victim himself.

Again referring to table No. 4 it will be seen that thirteen persons lost their lives outside the mines; four of these lost their lives on the strippings, one by fall of clay, two by blasts and one from a miscellaneous cause, while the other nine persons lost their lives in or about the breakers.

After careful investigation of the causes of the thirty-three accidents which proved fatal, it is my painful duty to state without fear of contradiction that 60 per cent. of these sad occurrences could be traced to the carelessness and indeed in many cases to the extreme recklessness of the victims themselves.

In conclusion I would state that with the care taken by the foremen and their assistants about the collieries of this district the workmen should resolve to take better care of themselves as in the opinion of the writer this is the only manner in which a reduction in fatalities about the mines can be hoped for.

## Cranberry Mine Fire.

About 6.30 P. M., October 8, 1897, a driver boy, Albert Billman, employed in the upper lift of No. 3 Slope, reported to Foreman Hale the existence of fire in the lower lift of No. 3 Slope. This is an inside slope, nearly a mile distant from the bottom of Slope No. 1, and has three lifts sunk in the Wharton vein on the north dip. About 100 yards west of the slope in the bottom lift a tunnel is driven, cutting the Wharton and Parlor veins on south dip. Gangways are driven east and west in both veins which are ventilated by a twenty foot fan located on north dip. The inlet is from Tunnel No. 1 on south dip in Parlor vein into the third lift, East Parlor gangway and out through the tunnel. Between the tunnel and the slope there is a door that turns part of the air into first and second lifts west parlor gangways on north dip. The east gangways are ventilated from the column way and air is conducted into the face by a brattice. Albert Billman stated that when hauling the last empty car to face of gangway he noticed smoke and called the attention of James Forrest, a miner, to the smell of smoke at a point on the turnout where the airway from the lower lift crossed. Forrest seemed to have paid no attention to the boy's story and made light of it. So he and his laborer, Felix Fartofsky, kept on loading the car. When they had the car loaded, Forrest said that he would go and look for the driver boy to have the car pulled out, leaving Fartofsky at his work. Meanwhile the driver boy had found the smoke denser and he ran down through the smoke to the third lift pump house, a distance of about 220 yards from the first lift to the pump, and there he met the driver boy, Robert Barnhart, of the lower lift, who told him the pump house was on fire.

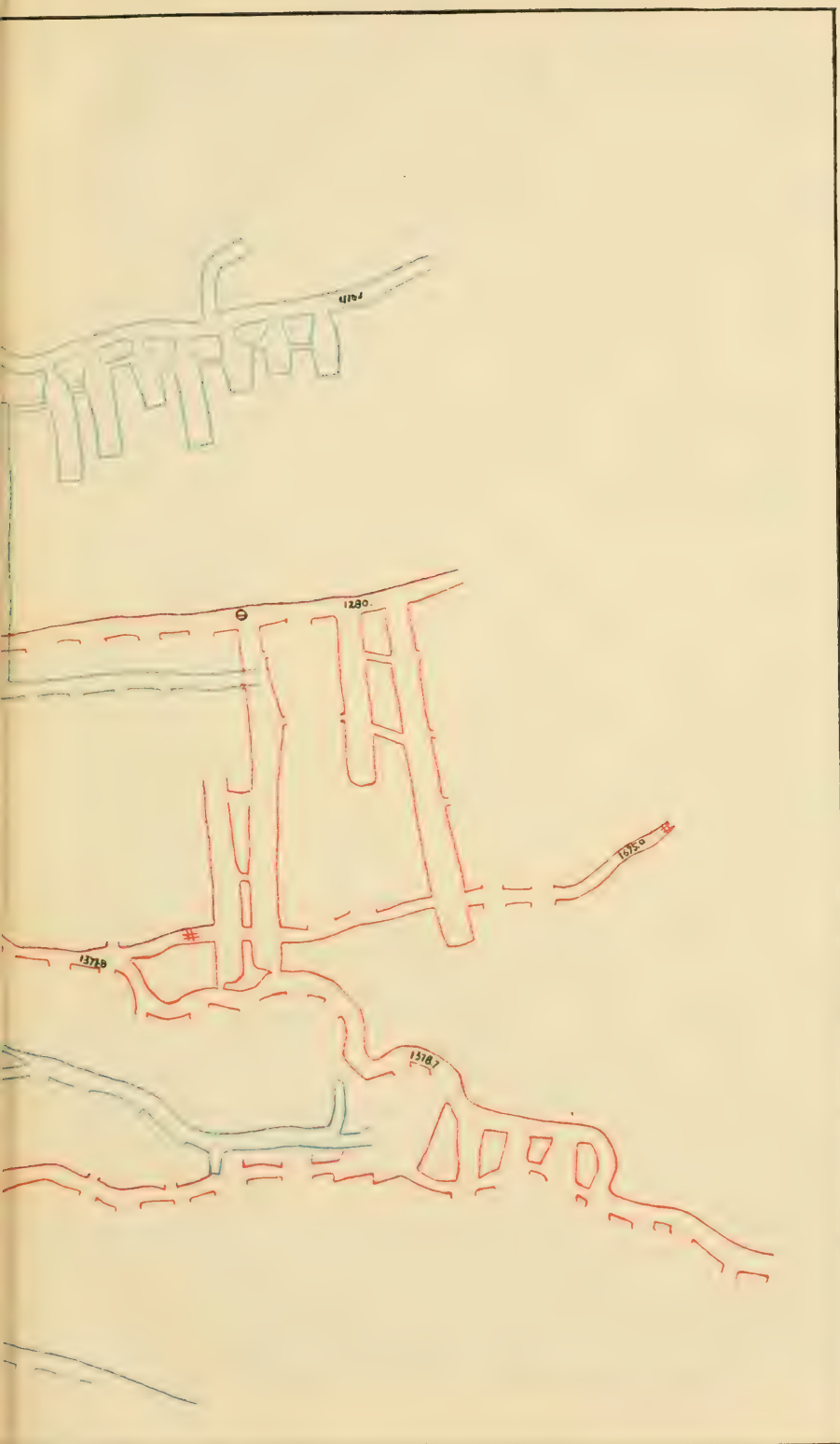
Both drivers tried to put out the fire in the pump house where it originated and where it was burning fiercely. There were four

# MAP OF PORTION OF NO 3 SLOPE
## CRANBERRY MINE

◎—PUMP-HOUSE WHERE FIRE ORIGINATED
O—WHERE FORREST WAS FOUND
O— • URBAN • •

C. H. Kay Em.

W. H. Davies.
Inspector of Mines


1280
1375.0
1378.9
1378.7

barrels of water and the hose conected with the pump always ready for emergencies, but it appears that the fire had too much headway, thus preventing access to this appliance. As the next best means they used powder kegs, carrying water from the ditch and throwing it on the fire. Finding this work of no avail, Billman ran to the surface to notify Foreman Hale, while the other driver, Barnhart, notified Fred. Henry and Thomas F. Woodring, miners working in the third lift, East Parlor Gangway, from eight to nine hundred yards beyond the place of fire, and on the south dip. Billman on his way out met the pump boy, Thomas Wishnifski, on top of No. 2 slope; the latter hastened down and rushed through the smoke to the fire at the pump house, where he arrived nearly exhausted. Fred. Henry and Thomas Woodring were at the scene, but soon found themselves powerless to fight the fire, as it had already gained too much headway, and the smoke forced them from the fire a distance of 30 to 40 yards back toward the tunnel. When Foreman Hale reached the place, he could not advance within that distance of the fire, as the smoke was coming back against the current, so he with Thomas Conahan and the pump boy hurried to the second lift to get the miner Zoran Urban, who was working on the east gangway of that lift. The smoke had penetrated west of the above mentioned airway about 200 yards, so that they could not get through to Urban. They therefore proceeded through a worked out breast up into the first lift and encountered but little smoke in the face of the gangway where Forrest's laborer was working. They found the laborer still engaged at his work at the face of the gangway. He was brought out and when asked where Forrest was, said Forrest had gone to look for the driver. Immediately a search was made for Forrest, who had not left there longer than ten minutes before. The men, led by Foreman Hale, found the air free from smoke until within ten yards of the airway. About there a mule was heard groaning. They concluded that Forest might have tried to liberate the mule and was overcome beside it. Hale repeatedly attempted to get to the mule, but his light was again and again extinguished by the smoke. Realizing that nothing could be done there, Hale, with Conahan and Wishnifski, went back into the first lift gangway but could not advance within sixty yards of the face on account of the density of the smoke. This occupied about ten minutes. By this time the men aimed to reach the second lift by the shortest route, there being a breast holed through from the second lift a few yards from face of gangway, which was found to be about four hundred yards east from where they had gotten through coming up. When they found it impossible to reach the man in the second lift; they hurried down to the third by the route they had taken in going up, fearing to be cut off by smoke before getting back

When they had reached the third lift it was found that the smoke had cleared away so they could begin fighting the fire. By this time there was a large force of men present fighting the fire. A short while thereafter Mr. Frank Pardee came to the scene, followed by Mr. Yeager, the general inside foreman, who personally directed and joined in the efforts to extinguish the flames. Mine Inspector Davis appeared early on the morning of the ninth and was present every day, assisting in the work of extinguishing the fire. Three shifts of men under the alternate charge of Mine Foreman Thomas Hale, George Ernold, Robert Hillhouse, Conrad Miller and John Zell kept up the work of fighting the fire, which extended from the pump house of the third level, through the column way up to the turnout on the second level. When they reached the scene on the turnout they immediately set to work to extend the pipe line up the slope, fighting every inch of the way through the smoke and flames, until they succeeded in completely extinguishing the fire, about 4.00 P. M., October 10. On the same day about 6.00 P. M., Forrest's body was found by Robert Hillhouse and John Zell lying on the slope near the first level. Urban's body had been found by the Mine Inspector and Mr. Yeager, earlier in the day at a point 351 feet east of the slope, in the parlor gangway. The position in which these two bodies were found, showed that while trying to make their escape, they fell victims to asphyxiation from the fumes and gases escaping from the fire.

Sixteen mules stabled on the east side of the same slope were also suffocated.

Much praise is due to the managers of the colliery, particularly Mr. Frank Pardee, general superintendent, for the precautionary measures taken by them to guard against mine fires. All persons, other than the pumpmen themselves, had positive orders against entering the pump rooms, and even they were not permitted to enter with a naked light, as the company furnishes lanterns to every man in charge of pumps. Another rule, and in the opinion of the writer a very good one, is that it is the duty of the pump man to dampen the roof, side and floor of the room in his charge every day. In addition to this, barrels are constantly kept filled with water, and hose connections are attached to the column of each pump, which was in readiness for any emergency, still, with all these precautions, two men perished in this conflagration.

The origin of the fire was for a time a mystery, but after a careful investigation, together with the testimony of those first to appear upon the scene, the writer believes beyond a doubt that the origin was incendiary.

TABLE No. 1—Showing Location, etc., of Collieries in the Fifth Anthracite District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Cranberry, | A. Pardee & Company, | Luzerne, | Frank Pardee, general superintendent, | Hazleton. |
| East Crystal Ridge, | A. Pardee & Company, | Luzerne, | Frank Pardee, general superintendent, | Hazleton. |
| Drifton, Nos. 1 and 2, | The Cross Creek Coal Company, | Luzerne, | Luther C. Smith, general supt.; Edgar Kudlich, mining engineer; John Rowland, supt. of preparation. | Drifton. |
| Eckley, | The Cross Creek Coal Company, | Luzerne, | do. do. | Drifton. |
| Stockton, | The Cross Creek Coal Company, | Luzerne, | do. do. | Drifton. |
| Beaver Meadow, | The Cross Creek Coal Company, | Carbon, | do. do. | Drifton. |
| Tomhicken, | The Cross Creek Coal Company, | Luzerne, | do. do. | Drifton. |
| Derringer, | The Cross Creek Coal Company, | Luzerne, | do. do. | Drifton. |
| Gowan, | The Cross Creek Coal Company, | Luzerne, | do. do. | Drifton. |
| Colliery No. 1, | Lehigh Coal and Navigation Company, | Carbon, | W. D. Zehner, general supt.; Baird Snyder, assistant supt.; T. M. Whildin, inside supt. | Lansford. |
| Colliery No. 4, | Lehigh Coal and Navigation Company, | Carbon, | do. do. | Lansford. |
| Colliery No. 5, | Lehigh Coal and Navigation Company, | Carbon, | do. do. | Lansford. |
| Colliery No. 6, | Lehigh Coal and Navigation Company, | Carbon, | do. do. | Lansford. |
| Colliery No. 9, | Lehigh Coal and Navigation Company, | Carbon, | do. do. | Lansford. |
| Screen building, | Lehigh Coal and Navigation Company, | Carbon, | do. do. | Lansford. |
| Jeddo No. 4, | G. B. Markle & Company, | Luzerne, | John Markle, general supt.; Samuel Dunkerly, inside supt. | Jeddo. |
| Highland No. 2, | G. B. Markle & Company, | Luzerne, | do. do. | Jeddo. |
| Highland No. 5, | G. B. Markle & Company, | Luzerne, | | |
| Colliery No. 1, | Lehigh Valley Coal Company, | Luzerne, | W. A. Lathrop, general supt.; F. E. Zerbey, division supt. | Wilkes-Barre. |
| Colliery No. 2, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Hazleton. |
| Colliery No. 3, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Hazleton. |
| Colliery No. 5, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Hazleton. |
| Colliery No. 6, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Hazleton. |
| Spring Mountain No. 1, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Hazleton. |
| Spring Mountain No. 4, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Hazleton. |
| Spring Mountain stripping, | Lehigh Valley Coal Company, | Luzerne, | do. do. | Hazleton. |
| Spring Brook, | Lehigh Valley Coal Company, | Carbon, | do. do. | Hazleton. |
| Milnesville, | A. S. Van Wickle, | Luzerne, | Jas. E. Roderick, general supt.; David J. Roderick, inside supt.; John Harvey, supt. of preparation. | Hazleton. |
| Coleraine, | A. S. Van Wickle, | Carbon, | | Milnesville. |
| Evans, | A. S. Van Wickle, | Carbon, | | Milnesville. |
| Lattimer No. 1, | Calvin Pardee & Company, | Luzerne, | A. W. Drake, | Lattimer. |
| Lattimer No. 3, | Calvin Pardee & Company, | Luzerne, | A. W. Drake, | Lattimer. |
| Harwood, | Calvin Pardee & Company, | Luzerne, | A. W. Drake, | Lattimer. |
| Hollywood, | Calvin Pardee & Company, | Luzerne, | A. W. Drake, | Lattimer. |
| Upper Lehigh, | The Upper Lehigh Coal Company, | Luzerne, | A. W. Leisenring, | Upper Lehigh. |
| Treskow No. 2, | Lehigh and Wilkes-Barre Coal Co., | Carbon, | E. H. Lawall, general supt., | Wilkes-Barre. |
| Treskow stripping, | Lehigh and Wilkes-Barre Coal Co., | Carbon, | Gomer E. Jones, supt., | Audenried. |
| Sandy Run, | M. S. Kemmerer & Company, | Luzerne, | Walter Leisenring, | Sandy Run. |
| Beaver Brook, | C. M. Dodson & Company, | Luzerne, | E. L. Bullock, | Audenried. |
| Hazle Brook, | J. S. Wentz & Company, | Luzerne, | George Reichert, | Hazle Brook. |
| Evans, | Frederick S. Duncan (receiver), | Carbon, | Stewart Kennedy, | Stockton. |
| Ebervale washery, | New Ebervale Coal Company, | Luzerne, | John G. Scott, | Hazleton. |
| Stockton washery, | Audenried Coal Company, | Luzerne, | John G. Scott, | Hazleton. |
| Evans washery, | Kennedy & Warner, | Carbon, | Stewart Kennedy, | Stockton. |
| Rowe, | Stauffer & Rowe, | Carbon, | James Rowe, | Beaver Meadow. |
| Dusky Diamond, | Morgans & Arnold, | Luzerne, | Thomas J. Morgans, | McAdoo. |
| Klondyke, | Treskow Coal Company, | Carbon, | Edward J. Newbaker, | Treskow. |

TABLE NO. 2.—Gives the Total Number of Tons of Coal Mined in each Colliery, Number of Days Worked, Number of Employes, Number of Persons Killed and Injured, Number of Kegs of Powder used, etc., in the Fifth Anthracite District for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Quantity of coal, in tons, used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments, in tons, of coal. | Number days worked. | Number persons employed. | Number fatal accidents. | Number non-fatal accidents. | Number kegs powder used. | Number pounds dynamite used. | Number steam boilers. | Number horses and mules. | Number mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A. Pardee & Co. | | | | | | | | | | | | | | |
| Cranberry, | Luzerne, | 181,489.02 | 26,968.07 | 2,771.12 | 150,645.01 | 149.35 | 740 | 2 | 9 | 4,922 | 33,700 | 58 | 88 | 7 |
| East Crystal Ridge, | Luzerne, | 71,004.09 | 7,923.00 | 1,104.02 | 63,081.09 | 158.30 | 255 | ..... | 5 | 2,131 | ..... | 17 | 30 | 2 |
| Total, | | 252,493.11 | 34,891.07 | 3,875.14 | 213,726.10 | 153.82 | 995 | 2 | 14 | 7,053 | 33,700 | 75 | 118 | 9 |
| The Cross Creek Coal Co. | | | | | | | | | | | | | | |
| Drifton, Nos. 1 and 2, | Luzerne, | 269,678.09 | 33,374.11 | 8,394.00 | 227,909.18 | 202 | 673 | 1 | 3 | 4,745 | 7,526 | 82 | 87 | 5 |
| Eckley, including Buck Mountain, | Luzerne, | 210,776.00 | 16,579.04 | 1,927.19 | 192,268.17 | 223 | 444 | 1 | 4 | 2,158 | 26,161 | 24 | 52 | 4 |
| Stockton, | Luzerne, | 166,537.02 | 17,159.16 | 500.00 | 148,877.06 | 166 | 452 | 2 | 1 | 3,169 | 15,633 | 25 | 32 | 2 |
| Beaver Meadow, | Carbon, | 131,562.05 | 23,578.19 | 4,171.13 | 103,811.13 | 190 | 385 | 1 | 2 | 2,610 | 10,249 | 34 | 30 | 3 |
| Tomhicken, | Luzerne, | 442.00 | 414.00 | 28.00 | ..... | ..... | 15 | ..... | ..... | 191 | 400 | 1 | 6 | ..... |
| Derringer and Gowen, | Luzerne, | 278,730.03 | 25,266.00 | 4,282.05 | 249,181.18 | 234 | 663 | 1 | 6 | 5,637 | 11,406 | 28 | 105 | 5 |
| Total, | | 1,057,725.19 | 116,372.10 | 19,303.17 | 922,049.12 | 203 | 2,632 | 6 | 16 | 18,510 | 71,375 | 194 | 312 | 19 |
| Lehigh Coal and Navigation Co. | | | | | | | | | | | | | | |
| Colliery No. 1, | Carbon, | 261,831.14 | 24,192.00 | 2,717.00 | 237,574.05 | 162.6 | 700 | ..... | 4 | 1,800 | 53,000 | 29 | 105 | 7 |
| Colliery No. 4, | Carbon, | 176,635.08 | 24,467.00 | 2,844.15 | 166,622.11 | 149.5 | 356 | 1 | ..... | 660 | 8,500 | 21 | 50 | ..... |
| Colliery No. 5, | Carbon, | 150,805.17 | 13,531.00 | 3,074.10 | 153,641.19 | 159.2 | 336 | ..... | 4 | 1,140 | 9,500 | 6 | 37 | 2 |
| Colliery No. 6, | Carbon, | ..... | ..... | ..... | ..... | ..... | 239 | ..... | ..... | 300 | 23,250 | 23 | 14 | 1 |
| Colliery No. 9, | Carbon, | 187,350.12 | 6,665.00 | 4,819.00 | 201,210.01 | 159.6 | 423 | ..... | ..... | 330 | 40,925 | 13 | 72 | 3 |
| Screen building, | Carbon, | ..... | ..... | ..... | ..... | 253 | 267 | ..... | ..... | ..... | ..... | 14 | 4 | 3 |
| Total, | | 776,623.11 | 68,855.00 | 13,455.65 | 759,048.16 | 176.8 | 2,321 | 1 | 8 | 4,230 | 135,175 | 106 | 282 | 16 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **G. B. Markle & Co.** | | | | | | | | | | | | | | |
| Jeddo No. 4, including Ebervale, | Luzerne, | 317,968.07 | 34,313.12 | 361.08 | 283,293.07 | 137.6 | 786 | 2 | 7 | 7,714 | 65,528½ | 38 | 87 | 9 |
| Highland No. 5, | Luzerne, | 262,208.15 | 10,886.00 | 64.00 | 251,258.15 | 140.5 | 521 | ..... | 3 | 5,820 | 13,363¾ | 16 | 61 | ..... |
| Highland No. 2, | Luzerne, | 143,135.05 | 18,565.00 | 4,065.00 | 120,505.05 | 136.5 | 349 | 1 | 2 | 3,615 | 6,745 | 42 | 88 | 1 |
| Total, | | 723,312.07 | 63,764.12 | 4,490.08 | 655,057.07 | 138.2 | 1,656 | 3 | 12 | 17,149 | 75,637¼ | 96 | 236 | 10 |
| **A. S. Van Wickle.** | | | | | | | | | | | | | | |
| Milnesville, | Luzerne, | 288,059.00 | ..... | 2,111.00 | 216,798.00 | 272 | 794 | 5 | 4 | 4,489 | 370,850 | 126 | 90 | 4 |
| Coleraine, including Evans, | Carbon, | 356,592.18 | ..... | 809.00 | 300,623.18 | 225.2 | 916 | 2 | 7 | 5,534 | 64,475 | 110 | 110 | 5 |
| Total, | | 644,651.18 | ..... | 2,920.00 | 517,421.18 | 248.6 | 1,710 | 7 | 11 | 10,023 | 435,325 | 236 | 200 | 9 |
| **Upper Lehigh Coal Co.** | | | | | | | | | | | | | | |
| Upper Lehigh, | Luzerne, | 230,739.13 | 35,770.00 | 3,523.03 | 191,246.10 | 187.7 | 574 | 2 | 3 | 4,773 | 4,000 | 80 | 100 | 6 |
| **Lehigh Valley Coal Co.** | | | | | | | | | | | | | | |
| Hazleton No. 1, | Luzerne, | 347,988.14 | 35,334.00 | 17,687.06 | 270,165.08 | 166.05 | 789 | 1 | 12 | 5,237 | 9,192½ | 14 | 74 | 3 |
| Hazleton No. 2, | Luzerne, | ..... | 4,430.08 | ..... | ..... | ..... | 25 | ..... | ..... | ..... | 41 | 25 | 6 | ..... |
| Hazleton No. 3, | Luzerne, | 52,254.03 | 23,159.00 | 657.00 | 28,438.03 | 39.9 | 512 | 1 | 2 | 407 | 9,976½ | 30 | 35 | 2 |
| Hazleton No. 5, | Luzerne, | 3,046.00 | 5,078.00 | ..... | ..... | ..... | 24 | ..... | ..... | ..... | 109 | 8 | 6 | 1 |
| Hazleton No. 6, | Luzerne, | 1,173.00 | 1,173.00 | ..... | ..... | ..... | 4 | ..... | ..... | ..... | ..... | 6 | 1 | ..... |
| Spring Mountain No. 1, | Luzerne, | 129,190.07 | 19,970.00 | 2,327.00 | 106,803.07 | 124.2 | 284 | ..... | 2 | 322 | 686 | 26 | 30 | 6 |
| Spring Mountain No. 4, | Luzerne, | 17,140.11 | 18,218.00 | 1,434.00 | 35,648.11 | 49.3 | 362 | ..... | ..... | 346 | 343 | 46 | 46 | 2 |
| Spring Mountain stripping, | Luzerne, | ..... | ..... | ..... | ..... | 158 | 133 | ..... | ..... | 561 | 6,939 | 5 | ..... | ..... |
| Spring Brook, | Carbon, | 133,431.04 | 16,917.00 | 1,217.10 | 115,299.14 | 145.1 | 445 | 3 | 4 | 3,138 | 2,265 | 47 | 35 | 2 |
| Total, | | 684,136.19 | 124,279.08 | 23,322.16 | 556,355.03 | 115.03 | 2,578 | 5 | 20 | 10,011 | 29,552 | 207 | 233 | 16 |
| **Calvin Pardee & Co.** | | | | | | | | | | | | | | |
| Lattimer No. 1, | Luzerne, | 149,597.07 | 25,142.00 | 3,340.07 | 121,115.00 | 182 | 439 | ..... | 2 | ..... | ..... | 39 | ..... | 3 |
| Lattimer No. 3, | Luzerne, | 202,518.10 | 25,596.00 | 770.14 | 181,151.16 | 188.2 | 446 | 1 | 3 | ..... | ..... | 26 | ..... | 3 |
| Lattimer Washery, | Luzerne, | 26,599.08 | 5,746.00 | ..... | 20,853.08 | **122.2** | 9 | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| Lattimer canal, | Luzerne, | ..... | ..... | ..... | ..... | ..... | 69 | ..... | 3 | ..... | ..... | 1 | ..... | 2 |
| Lattimer stripping, | Luzerne, | ..... | ..... | ..... | ..... | ..... | 280 | 1 | 3 | 9,500 | 103,750 | 2 | 117 | 1 |
| Hollywood, | Luzerne, | 18,293.13 | 6,972.00 | 344.12 | 10,977.01 | 67.6 | 177 | ..... | 1 | 100 | 2,000 | 28 | 6 | 1 |
| Harwood, | Luzerne, | 200,462.00 | 39,511.00 | 2,033.00 | 167,918.00 | 178.9 | 837 | ..... | 8 | 7,000 | 7,000 | 55 | 67 | 1 |
| Total, | | 606,470.18 | 97,967.00 | 6,488.13 | 502,015.05 | 157.7 | 2,257 | 2 | 20 | 16,600 | 112,750 | 151 | 190 | 12 |
| **Lehigh & Wilkes-Barre Coal Co.** | | | | | | | | | | | | | | |
| Treskow No. 2, | Carbon, | 42,988.13 | ..... | ..... | 35,518.13 | 42.4 | 424 | ..... | 2 | 942 | 4,785 | 14 | 21 | 2 |
| **M. S. Kemmerer & Co.** | | | | | | | | | | | | | | |
| Sandy Run, | Luzerne, | 116,467.10 | 6,497.12 | 1,675.00 | 108,294.18 | 181.4 | 365 | 1 | 2 | 872 | 20,888 | 34 | 50 | 2 |

TABLE NO. 2.—Continued.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Quantity of coal, in tons, used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments, in tons, of coal. | Number days worked. | Number persons employed. | Number fatal accidents. | Number non-fatal accidents. | Number kegs powder used. | Number pounds dynamite used. | Number steam boilers. | Number horses and mules. | Number mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C. M. Dodson & Co. | | | | | | | | | | | | | | |
| Beaver Brook, | Luzerne, | 198,785.00 | 25,000.00 | 12,812.00 | 160,975.00 | 169.5 | 542 | 1 | 2 | 4,783 | 1,785 | 55 | 56 | 1 |
| J. S. Wentz & Co. | | | | | | | | | | | | | | |
| Hazle Brook, | Luzerne, | 82,636.00 | ..... | ..... | 76,515.04 | 151 | 490 | 1 | 2 | 2,224 | 3,500 | 19 | 21 | 1 |
| Frederick S. Duncan (Receiver). | | | | | | | | | | | | | | |
| Evans, | Carbon, | 9,694.03 | 3,000.00 | 1,934.00 | 4,760.03 | 49 | 150 | 2 | 1 | 180 | 3,000 | 6 | 12 | ..... |
| New Ebervale Coal Co. | | | | | | | | | | | | | | |
| Ebervale washery, | Luzerne, | 44,541.18 | 4,365.00 | 747.00 | 39,439.18 | 126.5 | 159 | ..... | ..... | ..... | ..... | 12 | 4 | 1 |
| Audenried Coal Co. | | | | | | | | | | | | | | |
| Stockton washery, | Luzerne, | 4,163.07 | 362.00 | 13.00 | 3,788.08 | 26 | 133 | ..... | ..... | ..... | ..... | 8 | 3 | ..... |
| Morgans & Arnold. | | | | | | | | | | | | | | |
| Dusky Diamond, | Luzerne, | 4,417.00 | 108.00 | ..... | 4,307.00 | 216 | 26 | ..... | ..... | 305 | 100 | 2 | 1 | ..... |
| Stauffer & Rowe. | | | | | | | | | | | | | | |
| Rowe, | Carbon, | 5,420.00 | 112.00 | ..... | 5,281.00 | 225 | 42 | ..... | ..... | 250 | ..... | 1 | 9 | ..... |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tresckow Coal Company. | | | | | | | | | | | | | | |
| Klondyke, | Carbon, | 1,082.00 | 41.00 | ..... | 1,082.00 | 85 | 15 | ..... | ..... | 47 | ..... | 1 | 2 | ..... |
| Kennedy & Warner. | | | | | | | | | | | | | | |
| Evans washery, | Carbon, | 1,400.00 | ..... | ..... | 959.09 | 27 | 50 | ..... | ..... | ..... | ..... | ..... | 4 | ..... |

## Recapitulation.

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A. Pardee & Co., | Hazleton, | 252,493.11 | 34,891.07 | 3,875.14 | 213,726.10 | 153.33 | 995 | 2 | 14 | 7,053 | 33,700 | 75 | 118 | 9 |
| Cross Creek Coal Company, | Drifton, | 1,057,725.19 | 116,372.10 | 19,303.17 | 922,049.12 | 203 | 2,632 | 6 | 16 | 18,510 | 71,375 | 194 | 312 | 19 |
| Lehigh Coal and Navigation Co., | Lansford, | 776,623.11 | 68,855.00 | 13,455.05 | 759,048.16 | 176.8 | 2,321 | 1 | 8 | 4,230 | 135,175 | 106 | 282 | 16 |
| G. B. Markle & Co., | Jeddo, | 723,312.07 | 63,764.12 | 4,490.08 | 655,057.07 | 138.2 | 1,656 | 3 | 12 | 17,149 | 75,637¼ | 96 | 236 | 10 |
| A. S. Van Wickle, | Hazleton, | 644,651.18 | ..... | 2,920.00 | 517,421.18 | 248.6 | 1,710 | 7 | 11 | 10,023 | 435,325 | 236 | 200 | 9 |
| Upper Lehigh Coal Company, | Upper Lehigh, | 230,539.13 | 35,770.00 | 3,523.03 | 191,246.10 | 187.7 | 574 | 2 | 3 | 4,773 | 4,000 | 80 | 100 | 6 |
| Lehigh Valley Coal Company, | Hazleton, | 684,136.19 | 124,279.08 | 23,322.16 | 556,355.03 | 115.33 | 2,578 | 5 | 20 | 10,011 | 29,552 | 207 | 233 | 16 |
| Calvin Pardee & Co., | Lattimer, | 606,470.18 | 97,967.00 | 6,488.13 | 502,015.05 | 157.7 | 2,257 | 2 | 20 | 16,600 | 112,750 | 151 | 190 | 12 |
| Lehigh & Wilkes-Barre Coal Co., | Audenried, | 42,988.13 | ..... | ..... | 35,518.13 | 42.4 | 424 | ..... | 2 | 942 | 4,785 | 14 | 21 | 2 |
| M. S. Kemmerer & Co., | Sandy Run, | 116,467.10 | 6,497.12 | 1,675.00 | 108,294.18 | 181.4 | 365 | 1 | 2 | 872 | 20,888 | 34 | 50 | 2 |
| C. M. Dodson & Co., | Beaver Brook, | 198,785.00 | 25,000.00 | 12,812.00 | 160,975.00 | 169.5 | 542 | 1 | 2 | 4,783 | 1,785 | 55 | 56 | 1 |
| J. S. Wentz & Co., | Hazle Brook, | 82,636.00 | ..... | ..... | 76,515.04 | 151 | 490 | 1 | 2 | 2,224 | 3,500 | 19 | 21 | 1 |
| Evans Mining Company (Fred. S. Duncan, receiver), | Retired, | 9,694.03 | 3,000.00 | 1,934.00 | 4,760.03 | 49 | 150 | 2 | 1 | 180 | 3,000 | 6 | 12 | ..... |
| New Ebervale Coal Company, | Ebervale, | 44,541.18 | 4,365.00 | 747.00 | 39,439.18 | 126.5 | 159 | ..... | ..... | ..... | ..... | 12 | 4 | 1 |
| Audenried Coal Company, | Stockton, | 4,163.07 | 362.00 | 13.00 | 3,788.07 | 26 | 133 | ..... | ..... | ..... | ..... | 8 | 3 | ..... |
| Morgans & Arnold, | McAdoo, | 4,417.00 | 108.00 | ..... | 4,307.00 | 216 | 26 | ..... | ..... | 305 | 100 | 2 | 1 | ..... |
| Stauffer & Rowe, | Beaver Meadow, | 5,420.00 | 112.00 | ..... | 5,281.00 | 225 | 42 | ..... | ..... | 250 | ..... | 1 | 9 | ..... |
| Tresckow Coal Company, | Audenried, | 1,082.00 | 41.00 | ..... | 1,082.00 | 85 | 15 | ..... | ..... | 47 | ..... | 1 | 2 | ..... |
| Kennedy & Warner, | Retired, | 1,400.00 | ..... | ..... | 959.09 | 27 | 50 | ..... | ..... | ..... | ..... | ..... | 4 | ..... |
| Total, | ..... | 5,487,550.07 | 581,385.09 | 94,560.16 | 4,758,842.13 | 141.05 | 17,119 | 33 | 114 | 97,842 | 921,572¼ | 1,287 | 1,854 | 104 |

TABLE No. 3.—Showing the Number of each Class of Employes at each Colliery in the Fifth Anthracite District, during the Year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| **A. Pardee & Company.** | | | | | | | | | | | | | | | |
| Cranberry, | 8 | 335 | 109 | 43 | 21 | 30 | 546 | 1 | 15 | 24 | 55 | 97 | 2 | 194 | 740 |
| East Crystal Ridge, | 3 | 74 | 63 | 8 | 4 | 8 | 160 | 1 | 5 | 9 | 24 | 56 | ..... | 95 | 255 |
| Total, | 11 | 409 | 172 | 51 | 25 | 38 | 706 | 2 | 20 | 33 | 79 | 153 | 2 | 289 | 995 |
| **The Cross Creek Coal Company.** | | | | | | | | | | | | | | | |
| Drifton, Nos. 1 and 2, | 3 | 180 | 14 | 36 | 13 | 121 | 367 | 3 | ..... | 36 | 168 | 93 | 6 | 306 | 673 |
| Eckley, including Buck Mountain, | 5 | 108 | 16 | 19 | 7 | 43 | 198 | 2 | ..... | 26 | 152 | 65 | 1 | 246 | 444 |
| Stockton, | 1 | 143 | 18 | 16 | 7 | 52 | 237 | 2 | ..... | 16 | 124 | 72 | 1 | 215 | 452 |
| Beaver Meadow, | 3 | 73 | 13 | 21 | ..... | 61 | 171 | 2 | ..... | 21 | 135 | 55 | 1 | 214 | 385 |
| Tomhicken, | 1 | ..... | ..... | 2 | ..... | 10 | 13 | ..... | ..... | ..... | 1 | ..... | 1 | 2 | 15 |
| Deringer and Gowen, | 4 | 208 | 49 | 46 | 13 | 116 | 436 | 2 | ..... | 30 | 135 | 59 | 1 | 227 | 663 |
| Total, | 17 | 712 | 110 | 140 | 40 | 403 | 1,422 | 11 | ..... | 129 | 715 | 344 | 11 | 1,210 | 2,632 |
| **Lehigh Coal and Navigation Company.** | | | | | | | | | | | | | | | |
| Colliery No. 1, | 9 | 164 | 66 | 40 | 37 | 106 | 422 | 1 | 9 | 28 | 104 | 135 | 1 | 278 | 700 |
| Colliery No. 4, | 4 | 30 | 10 | 21 | 11 | 123 | 199 | 1 | 3 | 16 | 86 | 51 | ..... | 157 | 356 |
| Colliery No. 5, | 4 | 46 | 56 | 15 | 7 | 70 | 198 | 1 | 5 | 13 | 64 | 55 | ..... | 138 | 336 |
| Colliery No. 6, | 4 | 41 | 44 | 17 | 5 | 84 | 195 | 1 | 2 | 13 | ..... | 28 | ..... | 44 | 239 |
| Colliery No. 9, | 2 | 66 | 64 | 19 | 3 | 90 | 244 | 1 | 7 | 16 | 83 | 72 | ..... | 179 | 423 |
| Screen building, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 4 | 13 | 167 | 82 | ..... | 267 | 267 |
| Total, | 23 | 347 | 240 | 112 | 63 | 473 | 1,258 | 6 | 30 | 99 | 504 | 423 | 1 | 1,063 | 2,321 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **G. B. Markle & Company.** | | | | | | | | | | | | | | | |
| Jeddo No. 4, including Ebervale, | 2 | 152 | 60 | 43 | 15 | 224 | 496 | 1 | 14 | 16 | 91 | 158 | 10 | 290 | 786 |
| Highland No. 5, | 3 | 113 | 139 | 39 | 8 | 35 | 337 | 1 | 13 | 14 | 86 | 63 | 7 | 184 | 521 |
| Highland No. 2, | 1 | 95 | 43 | 21 | 8 | 45 | 213 | 1 | 11 | 16 | 53 | 48 | 7 | 136 | 349 |
| Total, | 6 | 360 | 242 | 103 | 31 | 304 | 1,046 | 3 | 38 | 46 | 230 | 269 | 24 | 610 | 1,656 |
| **A. S. Van Wickle.** | | | | | | | | | | | | | | | |
| Milnesville, | 3 | 55 | 68 | 13 | ..... | 29 | 168 | 8 | 23 | 47 | 51 | 494 | 3 | 626 | 794 |
| Coleraine and Evans, | 6 | 257 | 191 | 38 | 2 | 34 | 528 | 10 | 27 | 38 | 100 | 204 | 9 | 388 | 916 |
| Total, | 9 | 312 | 259 | 51 | 2 | 63 | 696 | 18 | 50 | 85 | 151 | 698 | 12 | 1,014 | 1,710 |
| **Upper Lehigh Coal Company.** | | | | | | | | | | | | | | | |
| Upper Lehigh, | 4 | 109 | 116 | 43 | 1 | 36 | 309 | 3 | 9 | 50 | 103 | 94 | 6 | 265 | 574 |
| **Lehigh Valley Coal Company.** | | | | | | | | | | | | | | | |
| Hazleton No. 1, | 3 | 219 | 75 | 40 | 2 | 130 | 469 | 1 | 22 | 17 | 110 | 166 | 4 | 320 | 789 |
| Hazleton No. 2, | 2 | ..... | 1 | ..... | ..... | 2 | 4 | 1 | 3 | 3 | ..... | 14 | ..... | 21 | 25 |
| Hazleton No. 3, | 2 | 100 | 34 | 6 | 1 | 179 | 322 | 1 | 14 | 10 | 90 | 73 | 2 | 190 | 512 |
| Hazleton No. 5, | 1 | ..... | ..... | ..... | ..... | 10 | 11 | ..... | ..... | 6 | ..... | 6 | 1 | 13 | 24 |
| Hazleton No. 6, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 | ..... | 4 | 4 |
| Spring Mountain No. 1, | 2 | 46 | 21 | 4 | 1 | 24 | 98 | 1 | 13 | 16 | 105 | 49 | 2 | 186 | 284 |
| Spring Mountain No. 4, | 2 | 84 | 37 | 26 | 4 | 29 | 182 | 1 | 7 | 20 | 103 | 47 | 2 | 180 | 362 |
| Spring Mountain stripping, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 2 | 4 | ..... | 125 | 1 | 133 | 133 |
| Spring Brook, | 2 | 95 | 120 | 13 | 3 | 30 | 263 | 1 | 9 | 22 | 86 | 62 | 2 | 182 | 445 |
| Total, | 13 | 544 | 288 | 89 | 11 | 404 | 1,349 | 7 | 70 | 100 | 494 | 544 | 14 | 1,229 | 2,578 |
| **Calvin Pardee & Company.** | | | | | | | | | | | | | | | |
| Lattimer No. 1, | 3 | 26 | 87 | 10 | 3 | 21 | 150 | 1 | 20 | 19 | 144 | 95 | ..... | 279 | 429 |
| Lattimer No. 3, | 4 | 19 | 101 | 14 | 3 | 19 | 160 | 2 | 19 | 16 | 151 | 98 | ..... | 286 | 446 |
| Lattimer washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 8 | ..... | 9 | 9 |
| Lattimer stripping, | ..... | 12 | 42 | 10 | 1 | 14 | 79 | 10 | 13 | 16 | ..... | 162 | ..... | 201 | 280 |
| Hollywood, | 1 | 6 | 18 | 2 | ..... | ..... | 27 | 1 | 6 | 11 | 79 | 53 | ..... | 150 | 177 |
| Harwood, | 5 | 233 | 159 | 26 | 13 | 30 | 466 | 1 | 19 | 30 | 172 | 149 | 10 | 381 | 847 |
| Lattimer canal, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 2 | 6 | ..... | 58 | ..... | 69 | 69 |
| Total, | 13 | 296 | 407 | 62 | 20 | 84 | 882 | 19 | 79 | 98 | 546 | 623 | 10 | 1,375 | 2,257 |
| **Lehigh and Wilkes-Barre Coal Company.** | | | | | | | | | | | | | | | |
| Tresckow No. 2, | 2 | 76 | 26 | 15 | 4 | 157 | 280 | 1 | 7 | 23 | 62 | 50 | 1 | 144 | 424 |
| **M. S. Kemmerer & Company.** | | | | | | | | | | | | | | | |
| Sandy Run, | 2 | 60 | 82 | 27 | 2 | 28 | 201 | 2 | 6 | 22 | 62 | 68 | 4 | 164 | 365 |
| **C. M. Dodson & Company.** | | | | | | | | | | | | | | | |
| Beaver Brook, | 2 | 102 | 106 | 23 | 11 | 55 | 299 | 1 | 10 | 23 | 100 | 104 | 5 | 243 | 542 |

TABLE NO. 3.—Continued.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| J. S. Wentz & Company. | | | | | | | | | | | | | | | |
| Hazle Brook, | 2 | 115 | 70 | 40 | 8 | 35 | 270 | 2 | 10 | 15 | 125 | 60 | 8 | 220 | 490 |
| Fred. S. Duncan. | | | | | | | | | | | | | | | |
| Evans colliery, | 1 | 30 | 15 | 7 | 2 | 10 | 95 | 1 | 3 | 9 | 22 | 18 | 2 | 55 | 150 |
| New Ebervale Coal Company. | | | | | | | | | | | | | | | |
| Ebervale washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 2 | 4 | 67 | 83 | 2 | 159 | 159 |
| Audenried Coal Company. | | | | | | | | | | | | | | | |
| Stockton washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 5 | 5 | 66 | 54 | 2 | 133 | 133 |
| Kennedy & Warner. | | | | | | | | | | | | | | | |
| Evans washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 22 | 24 | 2 | 50 | 50 |
| Morgans & Arnold. | | | | | | | | | | | | | | | |
| Dusky Diamond, | 1 | 5 | 10 | 1 | ..... | ..... | 17 | 1 | 1 | 2 | ..... | 5 | ..... | 9 | 26 |
| Stauffer & Rowe. | | | | | | | | | | | | | | | |
| Rowe colliery, | 1 | 10 | 12 | 2 | ..... | 2 | 27 | 1 | 1 | 1 | 1 | 10 | 1 | 15 | 42 |
| Tresckow Coal Company. | | | | | | | | | | | | | | | |
| Klondyke, | 1 | 4 | 4 | ..... | ..... | ..... | 9 | ..... | ..... | 2 | ..... | 3 | 1 | 6 | 15 |

## Recapitulation of Table No. 3.

| Names of Operators. | Occupations of Persons Employed Inside. | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| A. Pardee & Co., | 11 | 409 | 172 | 51 | 25 | 38 | 706 | 2 | 20 | 33 | 79 | 153 | 2 | 289 | 995 |
| Cross Creek Coal Company, | 17 | 712 | 110 | 140 | 40 | 403 | 1,422 | 11 | ..... | 129 | 715 | 344 | 11 | 1,210 | 2,632 |
| Lehigh Coal and Navigation Company, | 23 | 347 | 240 | 112 | 63 | 473 | 1,258 | 6 | 30 | 99 | 504 | 423 | 1 | 1,063 | 2,321 |
| G. B. Markle & Co., | 6 | 360 | 242 | 103 | 31 | 304 | 1,046 | 3 | 38 | 46 | 230 | 269 | 24 | 610 | 1,656 |
| A. S. Van Wickle, | 9 | 312 | 259 | 51 | 2 | 63 | 696 | 18 | 50 | 85 | 151 | 698 | 12 | 1,014 | 1,710 |
| Upper Lehigh Coal Company, | 4 | 109 | 116 | 43 | 1 | 36 | 309 | 3 | 9 | 50 | 103 | 94 | 6 | 265 | 574 |
| Lehigh Valley Coal Company, | 13 | 544 | 288 | 89 | 11 | 404 | 1,349 | 7 | 70 | 100 | 494 | 544 | 14 | 1,229 | 2,578 |
| Calvin Pardee & Co., | 13 | 296 | 407 | 62 | 26 | 84 | 882 | 19 | 79 | 98 | 546 | 623 | 10 | 1,375 | 2,257 |
| Lehigh and Wilkes-Barre Coal Company, | 2 | 76 | 26 | 15 | 4 | 157 | 280 | 1 | 7 | 23 | 62 | 50 | 1 | 144 | 424 |
| M. S. Kemmerer & Co., | 2 | 60 | 82 | 27 | 2 | 28 | 201 | 2 | 6 | 22 | 62 | 68 | 4 | 164 | 365 |
| C. M. Dodson & Co., | 2 | 102 | 106 | 23 | 11 | 55 | 299 | 1 | 10 | 23 | 100 | 104 | 5 | 243 | 542 |
| J. S. Wentz & Co., | 2 | 115 | 70 | 40 | 8 | 35 | 270 | 2 | 10 | 15 | 125 | 60 | 8 | 220 | 490 |
| Fred. S. Duncan (receiver), | 1 | 30 | 45 | 7 | 2 | 10 | 95 | 1 | 3 | 9 | 22 | 18 | 2 | 55 | 150 |
| New Ebervale Coal Company, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 2 | 4 | 67 | 83 | 2 | 159 | 159 |
| Audenried Coal Company, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 5 | 5 | 66 | 54 | 2 | 133 | 133 |
| Morgans & Arnold, | 1 | 5 | 10 | 1 | ..... | ..... | 17 | 1 | 1 | 2 | ..... | 5 | ..... | 9 | 26 |
| Stauffer & Rowe, | 1 | 10 | 12 | 2 | ..... | 2 | 27 | 1 | 1 | 1 | 1 | 10 | 1 | 15 | 42 |
| Treskow Coal Company, | 1 | 4 | 4 | ..... | ..... | ..... | 9 | ..... | ..... | 2 | ..... | 3 | 1 | 6 | 15 |
| Kennedy & Warner, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 22 | 24 | 2 | 50 | 50 |
| Total, | 108 | 3,491 | 2,169 | 766 | 220 | 2,092 | 8,866 | 81 | 341 | 747 | 3,329 | 3,627 | 108 | 8,253 | 17,119 |

TABLE No. 4.—List of Fatal Accidents that Occurred in and about the Mines of the Fifth Anthracite District, for the Year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Number of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Jan. 2. | Borz Bortiling, | Laborer, | 41 | M. | 2 | Sandy Run, | Luzerne, | Was smothered in loose coal; by walking over the draw hole of a chute supposed to be loaded with coal on the strippings, when suddenly the coal rushed down the chute, taking him with it; when the men came upon the scene, he was dead. |
| 3. | John McGinnes, | Night watchman, | 56 | M. | .... | Coleraine, | Carbon, | Instantly killed; while taking a mine locomotive to the water station, he fell from the engine cab to the track and was crushed to death beneath the engine. |
| 11. | Mike Mellish, | Laborer, | 24 | S. | .... | Slope No. 40, | Luzerne, | Instantly killed; while ascending the slope he insisted on standing erect in the man car despite the warnings of the other workmen; when nearing the top of the slope he was caught by a door frame and thrown from the car, with the above result. |
| 19. | Melcheal Motts, | Hitcher, | 27 | S. | .... | Spring Brook, | Carbon, | Instantly killed; while endeavoring to couple cars that were being pushed back by a locomotive near the foot of the breaker plane, to a car that was off the track, the cars came together and his head and shoulders were crushed so as to cause instant death. |
| Feb. 6. | John Hawks, | Miner, | 48 | M. | 6 | Milnesville, | Luzerne, | Instantly killed by being squeezed between the edge of a platform and a moving mine car; the unfortunate man was caught by the car while reaching for a dynamite box that was on the platform. |
| 16. | John Wasla, | Laborer, | 30 | S. | .... | Upper Lehigh, | Luzerne, | Instantly killed by a fall of coal in the gangway while engaged loading a car; the miner also had a very narrow escape. Accident was due to two invisible coal slips in the bench running at right angles to each other. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Feb. | 24, | Anthony Shumisky, .... | Miner, ..... | 23 | S. .... | Drifton No. 2, ..... | Luzerne, ..... | Fatally injured by a fall of rock; he was removed to the Hazleton hospital, where he died four days later. |
| Mar. | 11, | Andrew Crow, ..... | Carpenter, ..... | 42 | M. 2 | Slope No. 4, ..... | Carbon,..... | Fatally injured by falling down a manway about sixty-one feet, while removing a flight of stairs. |
| | 17, | Mike Amvick, ..... | Driver, ..... | 23 | S. .... | Milnesville, ..... | Luzerne, ..... | Fatally injured by the careless manner in which he attempted to jump on a moving mine car; he was caught between the car and the chute on the gangway, and died of his injuries three days later. |
| | 25, | Thomas Yamrus, ..... | Laborer, ..... | 28 | M. 4 | East End, Jeddo No. 4, | Luzerne, ..... | Fatally injured by being struck by a piece of coal, which fell from the top bench, first striking the car and then the victim, who was, at the time, loading the car; he died the following day. |
| | 25, | Charles Went, ..... | Loader, ..... | 38 | M. 1 | Milnesville, ..... | Luzerne, ..... | Fatally injured by being struck by a piece of rock thrown from a blast. |
| Apr. | 12, | Frank Gallagher, ..... | Miner, ..... | 50 | M. 2 | Stockton, ..... | Luzerne, ..... | Fatally injured in breast No. 6, West Mammoth gangway, by a piece of coal falling from the top, striking him; he was taken to his home and died same day. |
| | 12, | Peter Feedor, ..... | Miner, ..... | 45 | M. 2 | Stockton, ..... | Luzerne, ..... | Instantly killed by a "bell" falling from the roof of breast upon him, due to the neglect of the victim himself to stand props at the proper time. |
| May | 3, | Andrew Troda, ..... | Laborer, ..... | 35 | M. 3 | Milnesville, ..... | Luzerne, ..... | Fatally injured by being squeezed between mine cars on the stripping by the breaking of chain on the plane. |
| | 19, | Stephen Flesher, ..... | Miner, ..... | 26 | M. 1 | Hazle Brook, ..... | Luzerne, ..... | Instantly killed by a fall of slate and coal in a breast, caused by neglect in not propping same. |
| June | 23, | Peter Parrizika, ..... | Laborer, ..... | 49 | ... .... | Coleraine stripping, ... | Carbon,..... | Instantly killed; struck by a piece of rock thrown from a blast 900 feet away. |
| July | 16, | Philip Smith, ..... | Laborer, ..... | 22 | ... .... | Spring Brook breaker, | Carbon,..... | Fatally injured by stepping with one foot into breaker rolls; he had been cleaning the rolls and neglected to cover them while he went to the engine room; upon returning, he walked into the roll. He was sent to the hospital and died of heart failure while undergoing amputation. |
| | 26, | William Linderman, .... | Chute tender, ..... | 14 | S. .... | Lattimer No. 3, ..... | Luzerne, ..... | Instantly killed by being crushed under a coal conveyor line at the breaker. |
| Aug. | 16, | Daniel Gallagher, ..... | Miner, ..... | 30 | S. .... | Jeddo No. 4, ..... | Luzerne, ..... | Found dead by his fellow miner; the finding of the coroner's jury was that death was due to natural causes. |
| | 24, | John Werkley, ..... | Driver, ..... | 16 | S. .... | Highland No. 2, ..... | Luzerne, ..... | Fatally injured by having been crushed under a mine car while uncoupling the same; died the following day. |
| Sept. | 11, | John Seigle, ..... | Stable boss, ..... | 60 | M. .... | Milnesville, ..... | Luzerne, ..... | Fatally injured; he was knocked down while crossing the bottom of the slope by a mine car and died the same day. |

TABLE NO. 4.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Number of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Sept. 29, | Patrick McNales, ..... | Plane runner, ..... | 22 | S. | .... | Jeddo No. 4, ..... | Luzerne, ..... | Fatally injured by having been struck by a stick of timber that fell from the top of a car; he was taken to the hospital, where he died one month later. |
| Oct. 2, | John Bunsco, ..... | Laborer, ..... | 32 | S. | .... | Upper Lehigh stripping. | ..... | Fatally injured while trying to jump on a moving train; he was removed to the hospital and died five days later. |
| 25, | Daniel Gaylor, ..... | Carpenter, ..... | 38 | M. | .... | Eckley, ..... | Luzerne, ..... | Fatally injured by being crushed between a loaded mine car and the dump at the breaker; he died a few days later. |
| 25, | John Sagusky, ..... | Laborer, ..... | 31 | M. | 1 | Beaver Meadow stripping. | Carbon, ..... | Instantly killed by a fall of clay on the stripping, while trying to undermine the same by prodding it with a bar, which was a very foolhardy undertaking when he knew the bank was on the move. |
| 25, | Patrick Gaffney, ..... | Miner, ..... | 45 | S. | .... | Beaver Brook, ..... | Luzerne, ..... | Fatally injured by a fall of coal; he had been told that the top bench was not safe and that he should take it down. On Saturday he fired a shot in the north side of breast; this failing to bring down the bench, he commenced, on Monday, to mine the bottom bench by firing a shot and was drilling the second hole when the top bench along the entire face fell; he died on the way to his home. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Oct. | 6, | Lewis Zeo, | Miner, | 28 | S. | Evans, | Carbon, | These two men were suffocated by the gases generated from the explosion of powder; they were employed driving a breast to connect the lower level with the upper level workings; the miner, knowing that there was but eight feet of coal to break, drilled a hole in the face of the breast, charged it heavily with powder and fired it; they went back through the fumes and smoke and attempted to work, when they saw their mistake; they then dropped their tools and started down the breast, reaching a point thirty-five feet from the face when they both fell, victims of their own foolhardiness. |
| | 6, | John Zeo, | Laborer, | 26 | S. | Evans, | Carbon, | |
| | 8, | James Forrest, | Miner, | 48 | M. 3 | Cranberry, | Luzerne, | These two men were suffocated by smoke during a mine fire in the pump room in an underground slope; they were trying to make their escape; the former was found on the slope, while the latter was found on the gangway, about 351 feet from the slope after the fire had been extinguished. |
| | 8, | Zoran Urbano, | Miner, | 38 | M. 1 | Cranberry, | Luzerne, | |
| Nov. | 16, | Stephen Calonski, | Miner, | 38 | M. 1 | Lattimer No. 2 stripping, | Luzerne, | Instantly killed by springing a hole on the stripping. He had charged the hole with four kegs of powder, tied the fuse and detonater to a stick of dynamite, lighted the fuse, dropped it into the hole and was putting dirt or stemming in the hole when the charge exploded, throwing the victim into the air twenty feet, with the above result. |
| | 20, | John B. Cannon, | Miner, | 53 | M. 7 | Spring Brook, | Carbon, | Instantly killed by a fall of dividing slate in the Buck Mountain seam. He had been told by the assistant foreman to take the slate down. The railroad spikes were in evidence where he had tried to wedge it down, but failing in this, he continued blasting in the bottom bench and was trimming after a shot when the slate fell, killing him instantly. |
| Dec. | 2, | John Parrole, | Outside laborer, | 33 | M. | Derringer breaker, | Luzerne, | Fatally injured; while cleaning the railroad track at a point east of the breaker he stepped on the track in front of a loaded gondola, which knocked him down, the wheels running over both legs. He was alone responsible, as the brakeman told him to keep off the track until he brought the car down; he died the same day. |

TABLE NO. 4. —Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Number of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Dec. 28, | Daniel McGrady, ..... | Foreman, ..... | 53 | M. | .... | Hazle mines stripping, | Luzerne, ..... | Fatally injured by a blast on the stripping. He had drilled two holes and charged them with soda powder, attached a stick of dynamite to each detonater, then connected the wires to an electric battery and fired them. He, with several of the workmen, went back to examine the ground as usual after firing; they disconnected the battery wires and were standing directly over the scene when the second charge exploded, throwing the men in all directions. A careful examination revealed the fact that the stick of dynamite attached to the detonator used in charge No. 2 had been carelessly laid or exposed in a freezing temperature, while No. 1 hole was being charged, consequently in its frozen condition was inexplosive, but was simply ignited by the detonator and continued to burn until it reached the body of soda powder, when the charge exploded, causing the accident. He died a few days later at the hospital. It was a miracle that no more men were killed. |

TABLE No. 5.—List of Non-Fatal Accidents that Occurred in and about the Mines of the Fifth Anthracite District, for the Year ending December 31, 1897.

| Date of accident. | Number of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Jan. 5, | 1 | Frank Wydiz, | Laborer, | 28 | .... | Hazleton No. 1, | Luzerne, | Slightly injured by an explosion of gas. |
| 6, | 2 | Joseph Czak, | Laborer, | 43 | .... | Harwood No. 2, | Luzerne, | Leg fractured; struck by a piece of coal while pushing coal down a chute. |
| 11, | 3 | Frank Ganoda, | Roll tender, | 18 | .... | Hazleton No. 1, | Luzerne, | Painfully injured by thoughtlessly commencing to clean breaker rolls without first notifying the engineer. |
| 12, | 4 | William Herety, | Miner, | 28 | .... | Spring Mountain No. 4, | Luzerne, | Leg fractured; being struck by a piece of rock. |
| 12, | 5 | Joseph Coates, | Miner, | 44 | .... | Hazleton No. 3, | Luzerne, | Back badly contused by a fall of top coal. |
| 14, | 6 | Michael Staine, | Miner, | 24 | .... | Harwood No. 5, | Luzerne, | Severely burned by an explosion of powder, caused by a spark from his lamp. |
| 19, | 7 | Michael Rabbish, | Miner, | 26 | .... | Cranberry No. 1, | Luzerne, | Slightly injured by a piece thrown from a blast. |
| Feb. 1, | 8 | John Bauzak, | Miner, | 40 | .... | Harwood No. 4, | Luzerne, | Hip dislocated and lacerated wounds of face and hands by a fall of coal. |
| 2, | 9 | George Meisenberger, | Laborer, | 26 | .... | Hazleton No. 3, | Luzerne, | Eye injured; struck by a pick while trying to pass a fellow workman; he was sent to the hospital, where the eye was taken out. |
| 3, | 10 | Jacob Wagner, | Stable boss, | 35 | M. | Shaft No. 1, | Carbon, | Painfully injured; kicked by a mule. |
| 3, | 11 | James Boyle, | Miner, | 43 | M. | Coleraine, | Carbon, | Leg fractured; was struck by a piece of coal while at the bottom of the slope. |
| 3, | 12 | Mike Martin, | Miner, | 45 | .... | Coleraine, | Carbon, | Arm fractured; struck by the same piece of coal that fractured Boyle's leg. |
| 8, | 13 | Frank Dorsek, | Laborer, | 33 | .... | Hazle Brook, | Luzerne, | Painfully injured; squeezed between mine car and slope timber while ascending the slope. |
| 11, | 14 | George Boshwhy, | Outside laborer, | 26 | .... | Coleraine, | Carbon, | Leg fractured; struck by a lump of some material on the slate bank. |
| 15, | 15 | Angelis Sabasteaa, | Miner, | 33 | .... | Derringer, | Luzerne, | Leg fractured by a piece of rock thrown from a blast. |
| 16, | 16 | Condy McGill, | Miner, | .... | .... | Evans colliery, | Carbon, | Burned by an explosion of powder while preparing a cartridge. |

TABLE No. 5.—Continued.

| Date of accident. | Number of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Feb. 16, | 17 | Andrew Commisky, ... | Laborer, ..... | 35 | .... | Cranberry, ..... | Luzerne, ..... | Body severely injured by having been caught between cars while attempting to close the car door. |
| 17, | 18 | Lingi Carlo, ..... | Miner, ..... | 31 | .... | Cranberry, ..... | Luzerne, ..... | Slightly injured by a fall of coal near face of gangway. |
| 22, | 19 | John Shula, ..... | Laborer, ..... | 39 | .... | Milnesville, ..... | Luzerne, ..... | Skull fractured by having been struck by a locomotive. |
| 28, | 20 | Patrick O'Brien, ..... | Miner, ..... | 50 | .... | Upper Lehigh, ..... | Luzerne, ..... | Leg fractured by falling from a plank while standing a prop. |
| Mar. 3, | 21 | Charles Price, ..... | Miner, ..... | 33 | .... | Stockton, ..... | Luzerne, ..... | Leg fractured; struck by a piece of falling rock. |
| 8, | 22 | Julian Witt, ..... | Miner, ..... | 42 | .... | Cranberry No. 5, ..... | Luzerne, ..... | Painfully burned by an explosion of gas. |
| 8, | 23 | William Traell, ..... | Laborer, ..... | 28 | .... | Hazleton No. 1, ..... | Luzerne, ..... | Leg fractured by having been struck by a piece of rock thrown from a blast. |
| 12, | 24 | Conrad Helvick, ..... | Miner, ..... | 25 | .... | Shaft No. 1, ..... | Carbon, ..... | Painfully burned by an explosion of gas. |
| 12, | 25 | Peter Sokoloski, ..... | Laborer, ..... | 29 | .... | Lattimer No. 3, ..... | Luzerne, ..... | Head, arms and legs injured by pieces thrown from a blast on the stripping. |
| 13, | 26 | John Robey, ..... | Driver, ..... | 25 | .... | Cranberry No. 3 stripping | Luzerne, ..... | Leg fractured and internal injuries while trying to jump on a moving train. |
| 16, | 27 | George Kimbach, ..... | Driver, ..... | 17 | .... | East Crystal Ridge No. 2 stripping. | Luzerne, ..... | Collar bone fractured by having been squeezed between cars. |
| 16, | 28 | Stephen Veres, ..... | Laborer, ..... | 30 | .... | Harwood No. 4, ..... | Luzerne, ..... | Severely injured by a fall of coal. |
| 23, | 29 | Peter Buydesh, ..... | Driver, ..... | 22 | .... | Derringer, ..... | Luzerne, ..... | Leg fractured by having been squeezed between a moving car and a mine. |
| 24, | 30 | Jacob Simoden, ..... | Miner, ..... | 40 | .... | Treskow No. 2, ..... | Carbon, ..... | Leg fractured by a fall of coal. |
| 25, | 31 | Joseph Kirshbamer, .... | Miner, ..... | .... | .... | Derringer, ..... | Luzerne, ..... | Hip dislocated and leg fractured by a fall of top coal. |
| 29, | 32 | James Powell, ..... | Miner, ..... | 42 | .... | Shaft No. 5, ..... | Carbon, ..... | Severely burned by an explosion of gas due to the carelessness of the men themselves. |
| 29, | 33 | John Evans, ..... | Miner, ..... | 26 | .... | Shaft No. 5, ..... | Carbon, ..... | |
| Apr. 1, | 34 | John Novock, ..... | Foreman, ..... | 36 | .... | Upper Lehigh No. 5, .. | Luzerne, ..... | Leg fractured by a premature blast. |
| 6, | 35 | Joseph Matonis, ..... | Laborer, ..... | 25 | .... | Harwood No. 9, ..... | Luzerne, ..... | Leg fractured by having been struck by a piece of coal thrown from a blast. |
| 6, | 36 | James Burke, ..... | Driver, ..... | 23 | .... | Hazleton No. 1, ..... | Luzerne, ..... | Arm badly lacerated; while trying to unhitch a mule, he fell and his left arm was run over. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 12, | 37 | Peter Riley, | Jig runner, | 17 | .... | Spring Mountain No. 1, | Luzerne, | Slightly injured by cogs on the breaker while reaching for an oil can. |
| | 27, | 38 | James Cartright, | Patcher, | 17 | .... | Highland No. 2, | Luzerne, | Hip dislocated by having been squeezed between mine car and gangway timber. |
| | 30, | 39 | Joseph Rosinski, | Miner, | 25 | .... | Eckley, | Luzerne, | Leg fractured by a fall of coal. |
| May | 3, | 40 | Andro Tompko, | Laborer, | 38 | .... | Milnesville, | Luzerne, | Seriously injured by chain breaking on plane, the car running back, striking the car that he was pushing. |
| | 6, | 41 | John Thomas, | Driver, | 21 | .... | Coleraine, | Carbon, | Jaw fractured by having been kicked by a mule. |
| | 8, | 42 | George Tarabesak, | Driver, | 32 | .... | Lattimer, | Luzerne, | Foot badly crushed by having been caught between a car wheel and railroad switch. |
| | 8, | 43 | George Sleemock, | Miner, | 28 | .... | Hollywood, | Luzerne, | Ribs fractured by having been struck by loaded trolley box on stripping. |
| | 9, | 44 | John Airey, | Engineer, | 54 | .... | Lattimer, | Luzerne, | Arm fractured by falling from a plank while repairing a steam pipe. |
| | 10, | 45 | Henry Ohland, | Miner, | 40 | .... | Hazleton No. 1, | Luzerne, | Slightly injured by a fall of coal. |
| | 10, | 46 | Fred. Tabaldy, | Laborer, | 24 | .... | Hazleton No. 3, | Luzerne, | Badly contused back by having been crushed between mine car and slope timber. |
| | 12, | 47 | William Butler, | Miner, | 40 | .... | Spring Brook, | Carbon, | Ankle fractured by a fall of coal. |
| | 12, | 48 | William McGinley, | Driver, | 18 | .... | Beaver Brook, | Luzerne, | Seriously injured by having been kicked by a mule. |
| | 13, | 49 | John Hadley, | Miner, | 48 | .... | Spring Brook, | Carbon, | Slightly injured by a fall of clod in the gangway. |
| | 14, | 50 | James Gallagher, | Miner, | 53 | .... | Coleraine, | Carbon, | Face and head badly injured; while drilling out a missed hole or charge, the drill struck the detonator and exploded the charge. |
| | 17, | 51 | Theo. Harney, | Laborer, | 28 | .... | Highland No. 5, | Luzerne, | Seriously injured by falling from a rock chute, a distance of twenty feet. |
| | 24, | 52 | Stanislaf Koshick, | Driver, | 26 | .... | Lattimer stripping, | Luzerne, | Arm fractured by falling under a mine car. |
| June | 1, | 53 | Micheal Lega, | Miner, | 45 | .... | Beaver Meadow, | Carbon, | Leg fractured by a slip of coal which fell from the rib of breast. |
| | 9, | 54 | Andrew Cherba, | Laborer, | 23 | .... | Highland N. 5, | Luzerne, | Arm fractured and face and back badly lacerated by a fall of slate. |
| | 9, | 55 | Charles Peloffsky, | Miner, | 38 | .... | Tresckow No. 2, | Carbon, | Injured internally by a fall of slate. |
| | 21, | 56 | George Kriston, | Laborer, | 23 | .... | Eckley, | Luzerne, | Skull fractured by having been squeezed between a dump car and side of boiler room. |
| July | 6, | 57 | Samuel Steibing, | Hitcher, | 25 | .... | Cranberry No. 1, | Luzerne, | Leg fractured by having been squeezed between the bumpers of a mine car. |
| | 8, | 58 | John S. Watkins, | Laborer, | 17 | .... | Shaft No. 5, | Carbon, | Foot injured by a fall of rock. |
| | 12, | 59 | Anthony Sinkevich, | Miner, | 45 | .... | Ebervale, | Luzerne, | Back, head and hand injured by pieces thrown from a blast. |
| | 17, | 60 | Stephen Butcher, | Chute boss, | 39 | .... | Harwood, | Luzerne, | Ribs fractured by falling from a chute at the breaker. |
| | 22, | 61 | William McGinley, | Driver, | 18 | .... | Beaver Brook, | Luzerne, | Arm fractured by having been thrown down while spragging a car, and the wheel passed over his arm. |
| | 22, | 62 | John Washinco, | Laborer, | 37 | .... | Jeddo No. 4, | Luzerne, | Head and back lacerated by having been struck by coal thrown from a blast. |

TABLE No. 5.—Continued.

| Date of accident. | Number of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| 30. | 63 | Frank Ward, | Miner, | 53 | .... | Hazleton No. 1 stripping. | Luzerne, | Head badly lacerated by pieces of coal thrown from a blast. |
| 31. | 64 | John Dinner, | Laborer, | 30 | .... | Lattimer No. 3, | Luzerne, | Leg fractured by a rock rolling down a chute and striking him. |
| Aug. 2. | 65 | George Cihi, | Miner, | 38 | M. | Sandy Run, | Luzerne, | Back and head injured by a fall of coal. |
| 10. | 66 | Mike Gallagher, | Laborer, | 19 | S. | Hazle Brook, | Luzerne, | Leg fractured by a fall of slate. |
| 13. | 67 | Anthony Yenkowitch, | Loader, | 28 | S. | Derringer, | Luzerne, | Ribs fractured by having been squeezed between railroad car and the breaker timber. |
| 19. | 68 | Frank Murtah, | Laborer, | 27 | .... | Lattimer No. 4, | Luzerne, | Eye injured by having been struck by a piece of rock. |
| 20. | 69 | John Harding, | Miner, | 45 | .... | Jeddo No. 4, | Luzerne, | Head and thigh injured by a fall of coal. |
| 21. | 70 | Mike Cotsack, | Driver, | 29 | .... | Lattimer canal, | Luzerne, | Leg fractured by having been squeezed between mule and a car. |
| 24. | 71 | Lewis Bellegrini, | Laborer, | 27 | .... | Derringer, | Luzerne, | Arm fractured by a fall of coal. |
| 26. | 72 | Michael Chole, | Miner, | 38 | .... | Spring Brook, | Carbon, | Spine fractured by a fall of rock in face of breast. |
| 26. | 73 | Michael Bolanich, | Miner, | 26 | .... | Spring Brook, | Carbon, | Leg fractured by the same fall of rock. |
| 27. | 74 | Joseph Coleman, | Oiler, | 21 | .... | Eckley, | Luzerne, | Finger cut off by having been caught between wrench and gyrating screen. |
| 27. | 75 | John Jacobition, | Miner, | 39 | M. | Lattimer No. 2, | Luzerne, | Hand blown off; while in the act of recharging a hole with powder it exploded. |
| Sept. 9. | 76 | Michael Swankofski, | Miner, | 35 | .... | Buck Mountain, | Luzerne, | Back and hips injured by a fall of coal. |
| 11. | 77 | John Gillespie, | Miner, | 48 | .... | Drifton No. 1, | Luzerne, | Leg fractured; while trying to dislodge a battery prop it fell upon his leg. |
| 18. | 78 | James Fisher, | Miner, | 35 | .... | Jeddo No. 4, | Luzerne, | Fractured leg and scalp wound by a fall of rock at face of gangway. |
| 24. | 79 | Stephen Placko, | Loader, | 42 | .... | Milnesville, | Luzerne, | Severely injured by a piece of rock thrown from a blast. |
| 25. | 80 | John Androski, | Laborer, | 40 | .... | Harwood No. 5, | Luzerne, | Leg fractured by having been squeezed between mine cars. |
| 29. | 81 | Martin Fry, | Laborer, | 38 | .... | Cranberry No. 1, | Luzerne, | Leg fractured by having been squeezed between mine cars; he was taken to the hospital, where the leg was amputated. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Oct. | 1, | 82 | John Hovanitz, | Driver, | 27 | .... | Lattimer canal, | Luzerne, | Ribs fractured by having been crushed by a mine car. |
| | 6, | 83 | Narcissus Rossi, | Miner, | 21 | .... | Drifton No. 2, | Luzerne, | Severely burned by an explosion of gas. |
| | 7, | 84 | Charles Watkins, | Miner, | 24 | .... | Ebervale, | Luzerne, | Leg fractured by having been caught by a rush of loose rock on the gangway. |
| | 8, | 85 | Mike Lazure, | Miner, | 27 | .... | Highland No. 2, | Luzerne, | Face and hand badly injured by a premature blast. |
| | 13, | 86 | William Hansley, | Miner, | 40 | .... | Hazleton No. 1, | Luzerne, | Leg fractured by a fall of coal in the breast. |
| | 14, | 87 | William Fulmer, | Driver, | 18 | .... | Coleraine, | Carbon, | Arm and leg fractured by having been thrown down the rock bank, together with a car. |
| | 16, | 88 | James Lamb, | Miner, | 28 | .... | Shaft No. 5, | Carbon, | Eye injured by a piece of coal thrown from a mine pick; he was sent to the hospital, where the eye was taken out. |
| | 16, | 89 | Joseph Barcus, | Miner, | 40 | .... | Highland No. 4, | Luzerne, | Head and legs injured by a fall of coal. |
| | 21, | 90 | Nathan Schell, | Laborer, | 34 | .... | Derringer No. 2, | Luzerne, | Leg fractured by having been caught between a piece of rock and rail. |
| | 25, | 91 | Mike Yenschall, | Laborer, | 48 | .... | Beaver Meadow, | Carbon, | Leg fractured by a fall of clay on the stripping. |
| | 29, | 92 | William Jenkins, | Miner, | 29 | .... | Upper Lehigh, | Luzerne, | Leg fractured by a fall of coal. |
| Nov. | 4, | 93 | John Bowden, | Miner, | 34 | S. | No. 1 tunnel, | Carbon, | Arm fractured by a fall of coal while engaged in robbing pillars. |
| | 9, | 94 | Richard Guscott, | Miner, | 55 | M. | Hazleton No. 1, | Luzerne, | Painfully burned by an explosion of powder; while preparing a cartridge of powder a spark from his lamp ignited it. |
| | 9, | 95 | Lewis Zucal, | Miner, | 28 | S. | Drifton No. 2, | Luzerne, | Painfully burned by an explosion of C. H.4 gas; he ignited the gas while going up the manway with a naked lamp. |
| | 9, | 96 | Henry Koch, | Foreman, | 47 | M. | Crystal Ridge, | Luzerne, | Slightly burned by an explosion of C. H.4 gas; the foreman was making the usual examination of the mine in the morning, when the two miners went into a face with their naked lamps, igniting the gas, burning themselves and the foreman, who was on his way out to notify them. |
| | 9, | 97 | Albert Strickas, | Miner, | 38 | M. | Crystal Ridge, | Luzerne, | |
| | 9, | 98 | John Shaya, | Miner, | 28 | M. | Crystal Ridge, | Luzerne, | |
| | 12, | 99 | Donat Bongion, | Laborer, | 20 | S. | Jeddo canal, | Luzerne, | Severe contusion of both thighs; while trying to jump on a moving train he fell, the empty cars passing over his legs. |
| | 22, | 100 | Mike Lapinski, | Laborer, | 22 | S. | Hazleton No. 1, | Luzerne, | Leg fractured by having been struck by a piece of loose coal rolling down the breast. |
| | 23, | 101 | Andrew Rudan, | Miner, | 35 | M. | Coleraine, | Carbon, | Seriously injured by having been struck by a piece of coal while standing on the plane. |
| | 26, | 102 | Anthony Benofski, | Miner | 25 | S. | Cranberry, | Luzerne, | Ribs fractured by having been struck by a falling prop near the bottom of the breast. |
| | 26, | 103 | Charles Gallagher, | Driver, | 22 | S. | Hazleton No. 1, | Luzerne, | Leg fractured; while he was unhitching mules from a trip of cars, the trace chain twisted about his leg, when the mules started and the driver was thrown, with the above result. |

TABLE No. 5.—Continued.

| Date of accident. | Number of Accidents. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| 26. | 104 | Paul Pickenhain, ..... | Miner, ..... | 29 | M. | East Crystal Ridge, .... | Luzerne, ..... | Back severely bruised by a fall of bony coal. |
| 27. | 105 | Frank August, ..... | Jackman, ..... | 27 | M. | Lattimer canal, ..... | Luzerne, ..... | Badly injured about the hips and abdomen by a fall of clay from the canal bank. |
| 29. | 106 | Robert Pritchard, ..... | Driver, ..... | 17 | S. | Ebervale canal, ..... | Luzerne, ..... | Left leg fractured and foot badly lacerated by being struck by a steel rail, while dragging the same down a dump with a mule. |
| Dec. 1. | 107 | John Sterbach, ..... | Laborer, ..... | 43 | M. | Hazle mines stripping, | Luzerne, ..... | Leg fractured by a rush of material while he was loading a car. |
| 3. | 108 | John Zemsky, ..... | Driver, ..... | 25 | S. | Milnesville, ..... | Luzerne, ..... | Seriously injured by falling under a car on the rock bank. |
| 3. | 109 | Frank Ptak, ..... | Miner, ..... | 27 | M. | Harwood No. 5, ..... | Luzerne, ..... | Injured about the head and body by pieces of coal flying from a blast. |
| 17. | 110 | John D. Davis, ..... | Miner, ..... | 37 | M. | Sandy Run, ..... | Luzerne, ..... | Foot badly lacerated by having been struck by a piece of coal. |
| 22. | 111 | William Carey, ..... | Miner, ..... | 25 | M. | Shaft No. 1, ..... | Carbon, ..... | Burned by an explosion of gas, owing to extreme recklessness in not using the safety lamp, knowing the gas was there. |
| 23. | 112 | Frank Renaud, ..... | Laborer, ..... | 24 | S. | Cranberry, ..... | Luzerne, ..... | Head crushed by a bell of rock in the breast; his escape from instant death was miraculous. |
| 28. | 113 | Enoch Howells, ..... | Engineer, ..... | 27 | M | Hazle mines stripping, | Luzerne, ..... | These two men were badly injured by a blast on the stripping; this was the same accident that caused the death of Daniel McGrady, and these men narrowly escaped; the cause, as stated in the table, was due to a frozen stick of dynamite. |
| 28. | 114 | Chauncy Brown, ..... | Fireman, ..... | 28 | M. | Hazle mines stripping, | Luzerne, ..... | |

# Sixth Anthracite District.

(SCHUYLKILL COUNTY.)

Shenandoah, Pa., Feb. 19, 1898.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: As required by section nine, article two, of the act of June, 1891. I have the honor of herewith submitting to you my annual report of the Sixth anthracite coal district for the year 1897.

The report shows an increase of six fatal and a decrease of twenty-six non-fatal accidents during the year, as compared with 1896. It also shows the increase in the number of employes to be seventy-seven and a decrease in the production of coal of 45,580 tons.

As to the causes of so many fatal and non-fatal accidents, it must be quite apparent to the skillful miner that at least nine-tenths of them are the result of inexperience and recklessness. The law is mandatory to the extent that the operator shall provide for the safety of his workmen, and I do not hesitate to state that this is practically carried out, yet the number of accidents is increasing and we can look for no improvement unless the men are taught to detect the dangers incident to mining coal, when they present themselves, and at the same time be able to determine how to avert them.

It is a fact that the general condition of the collieries in the sixth district is being yearly improved, and it is also apparent that the coal companies are making a general effort looking to the end that the lives of their workmen can be best protected.

In further commenting on the accidents which occurred in and about the collieries in this district during the year 1897, there has not been an unusual calamity resulting in the loss of more than two lives at one time, yet I am forced to say that some of the officials do not put forth the proper efforts they should to avert at least some of the accidents, for it has been my experience that some mine foremen are rather impressed with the idea that the miner having been qualified by the Miners' Board of Examiners he himself is responsible for his safety, so far as the actual cutting of coal is concerned. A mine foreman cannot be expected to supervise the actual mining of coal in all of his mine openings. Yet accidents have occurred during the year where the mine foreman was to some ex-

tent culpable to the extent that his discipline was lax in not enforcing the instructions given him by his superiors and seeing that they were obeyed.

When a mine accident occurs whereby from five to twenty men are killed, it strikes awe into the hearts of a mining community, but when one is killed at one or another colliery until the death rate reaches ten a month or seventy-three a year, we are too prone to give it but very little thought, and to look upon the accidents as matters of course.

Yours very respectfully,
WILLIAM STEIN,
Inspector of Mines.

Examination of Applicants for Mine Foreman's Certificates.

The annual examination for mine foremen's certificates was held in Pottsville, June, 1897. The examiners were William Stein, mine Inspector, William H. Lewis, superintendent, Frank Wilcom and Michael Brennan, miners.

The following are the names of the successful candidates who were granted mine foreman's certificates: William S. Davis, Audenreid, and Patrick J. Freel, New Boston.

Total Number of Persons Employed Inside and Outside of Mines and Nature of Their Employment—Inside.

| | | |
|---|---|---|
| Inside foremen, | 59 | |
| Fire bosses, | 130 | |
| Miners, | 4,688 | |
| Miners' laborers, | 2,834 | |
| Drivers and runners, | 878 | |
| Door boys and helpers, | 244 | |
| All other company men, | 3,199 | |
| Total inside, | | 12,032 |

Outside.

| | | |
|---|---|---|
| Outside foremen, | 62 | |
| Blacksmiths and carpenters, | 293 | |
| Engineers and firemen, | 802 | |
| Slate pickers, | 4,669 | |
| All other company men, | 3,096 | |
| Superintendents, bookkeepers and clerks, | 102 | |
| Total outside, | | 9,024 |
| Total inside and outside, | | 21,056 |

Table Showing the Quantity of Coal Produced and Shipped During the Years 1896 and 1897.

| | Years. | |
|---|---|---|
| | 1896. | 1897. |
| Quantity of coal produced in tons of 2,240 pounds, | 6,521,510 | 6,475,930 |
| Quantity of coal shipped in tons of 2,240 pounds, | 6,016,021 | 5,625,688 |

Table Showing Number of Fatal Accidents and Quantity of Coal Produced per Life Lost.

| | Number of fatal accidents. | Tons of coal produced per fatal accident. |
|---|---|---|
| Philadelphia and Reading Coal and Iron Company, | 45 | 76,948 |
| Lehigh Valley Coal Company, | 12 | 57,869 |
| Lehigh and Wilkes-Barre Coal Company, | 3 | 174,897 |
| Lentz & Company, | 3 | 79,376 |
| Silver Brook Coal Company, | 2 | 126,553 |
| William Penn Coal Company, | 4 | 64,498 |
| Mill Creek Coal Company, | | |
| Cross Creek Coal Company, | 2 | 139,594 |
| Individual firms, | 2 | 236,931 |

| Years. | Killed. | Injured. | Total. | Total number of employes. | Number of employes to each casualty. | Number of tons of coal mined to each fatal casualty. | Number of tons of coal mined to each non-fatal casualty. | Ratio of tons o fcoal to each casualty. | Number of tons of coal mined to each employe. | Total number of tons of coal mined. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1893 | 67 | 139 | 199 | 21,974 | 110 | 110,597 | 47,737 | 38,345 | 302 | 6,674,807 |
| 1894 | 73 | 94 | 167 | 20,109 | 120 | 86,847 | 67,445 | 37,963 | 305 | 6,334,831 |
| 1895 | 59 | 85 | 144 | 19,816 | 139 | 124,828 | 84,262 | 49,758 | 359 | 7,164,885 |
| 1896 | 67 | 99 | 166 | 20,979 | 125 | 97,873 | 66,237 | 39,503 | 313 | 6,521,510 |
| 1897 | 73 | 73 | 146 | 21,056 | 144 | 88,711 | 88,711 | 44,356 | 308 | 6,475,930 |
| Total | 339 | 490 | 822 | 103,934 | 639 | 508,856 | 354,422 | 209,925 | 1,587 | 33,176,973 |
| Averages | 66 | 98 | 164 | 20,786 | 128 | 101,771 | 70,884 | 41,985 | 318 | 6,635,394 |

The Following Table, Taking the Death Rate per Thousand as a Basis of Comparison Between the Different Companies and Individual Operators, Shows the Ratio for the Year.

| | Number of employes. | Number of deaths. | Death rate per thousand. |
|---|---|---|---|
| Philadelphia and Reading Coal and Iron Company, | 11,941 | 45 | 3.77 |
| Lehigh Valley Coal Company, | 2,271 | 12 | 5.28 |
| Lehigh and Wilkes-Barre Coal Company, | 1,754 | 3 | 1.71 |
| Lentz & Company, | 847 | 3 | 3.53 |
| Silver Brook Coal Company, | 543 | 2 | 3.79 |
| Mill Creek Coal Company, | 828 | | |
| William Penn Coal Company, | 844 | 4 | 4.83 |
| Cross Creek Coal Company, | 726 | 2 | 2.75 |
| Individual firms, | 1,302 | 2 | 1.50 |

The Following is the Number of Accidents, Fatal and Non-Fatal and the Nationalities of those Killed and Injured.

| | Fatal. | Non-Fatal. |
|---|---|---|
| Americans, | 10 | 10 |
| English, | 3 | 5 |
| Irish, | 8 | 12 |
| Welsh, | 2 | 4 |
| Scotch, | | |
| Germans, | 8 | 5 |
| Polish, | 35 | 23 |
| Hungarian, | 6 | 8 |
| Italian, | 1 | 3 |
| Total, | 73 | 73 |

| | |
|---|---|
| Trifling accidents, | 87 |
| Number maimed, | 33 |
| Wives left widows, | 35 |
| Orphans, | 83 |

## Fatal Accidents and Their Causes.

| | |
|---|---|
| From explosions of gas, | 7 |
| From explosions of powder and blasts, | 9 |
| From falls of slate and coal, | 33 |
| From breaking of ropes on surface, | 2 |
| From falling down shafts, | 1 |
| From mine cars and machinery, | 12 |
| Suffocated by a rush of loose coal at battery, | 1 |
| Suffocated by gas, | 1 |

| | |
|---|---|
| Miscellaneous underground, | 5 |
| Miscellaneous on surface, | 2 |
| Total, | 73 |

Non-Fatal Accidents and Their Causes.

| | |
|---|---|
| Explosions of gas, | 11 |
| Explosions of powder and blasts, | 14 |
| Mine cars and machinery, | 13 |
| Falls of slate and coal, | 17 |
| Miscellaneous underground, | 7 |
| Miscellaneous on surface, | 11 |
| Total, | 73 |

Summary Sixth Anthracite District, 1897.

| | |
|---|---|
| Total production in tons of coal, | 6,475,930 |
| Quantity of coal in tons used for steam and heat, | 760,041 |
| Sold to local trade and used by employes, | 96,032 |
| Railroad shipments in tons of coal, | 5,625,688 |
| Tons of coal produced by washeries which are included in total production, | 220,457 |
| Number of fatal accidents, | 73 |
| Number of non-fatal accidents, | 73 |
| Number of fatal accidents inside, | 62 |
| Number of non-fatal accidents inside, | 53 |
| Number of fatal accidents outside, | 11 |
| Number of non-fatal accidents outside, | 20 |
| Number of wives left widows, | 35 |
| Number of children left fatherless, | 83 |
| Number of persons employed, | 21,056 |
| Number of kegs of powder used, | 146,777 |
| Number of pounds of dynamite used, | 233,528 |
| Number of steam boilers in use, | 903 |
| Number of horses and mules, | 2,073 |
| Number of mine locomotives, | 39 |

Names of Collieries and the Number of Accidents that Occurred at Each, and the Names of Foremen.

| Names of Collieries. | Fatal accidents inside. | Non-fatal accidents inside. | Fatal accidents outside. | Non-fatal accidents outside. | Names of Inside Foremen. | Names of Outside Foremen. |
|---|---|---|---|---|---|---|
| Boston Run, | .... | 2 | .... | .... | Thomas Coan, | John Durkin. |
| St. Nicholas, | 3 | 1 | .... | .... | David Jones, | Wm. Sauerbrey. |
| Ellengowan, | 6 | 3 | .... | .... | John Brown, | John Heiler. |
| Ellengowan, | .... | .... | .... | .... | Silas Frost, | John Heiler. |
| Girard Mammoth, | .... | 1 | .... | .... | Charles Harlor, | Wm. Buckley. |
| Gilberton, | 1 | 1 | 1 | 2 | George Thomas, | Wm. Bendon. |
| Hammond, | 1 | .... | 1 | .... | David Fulton, | John Haley. |
| Indian Ridge, | 2 | 2 | .... | 2 | Wm. Mitchell, | Albert Smith. |
| Knickerbocker, | 2 | 3 | .... | .... | John Balliet, | Joseph Knapp. |
| Kohinoor, | 2 | .... | .... | 1 | Patrick McDonald, | Dan. Lauderman. |
| Mahanoy City, | 1 | 1 | .... | .... | George Kilgour, | Anth. Ferguson. |
| Suffolk, | 1 | .... | .... | .... | David Adamson, | .... |
| Schuylkill, | 2 | .... | .... | .... | James McCabe, | Thos. Lawrence. |
| Shenandoah City, | 3 | 4 | .... | 1 | Fred. Carl, | M. Baugh. |
| Shenandoah City, | .... | .... | .... | .... | John W. Morgan, | M. Baugh. |
| Turkey Run, | .... | 1 | .... | .... | Ben Church, | Fred. Reese. |
| Tunnel Ridge, | 5 | 2 | .... | 1 | Thos. Eltringham, | John Reid. |
| Tunnel Ridge, | .... | .... | .... | .... | Mich. Bradley, | John Reid. |
| Bear Ridge, | .... | 2 | .... | .... | John Hanson, | Arthur Jones. |
| Bear Ridge, | .... | .... | .... | .... | Wm. Evans, | Arthur Jones. |
| West Shenandoah, | 2 | .... | .... | .... | David Morgan, | A. D. Gable. |
| Maple Hill, | 6 | 4 | .... | .... | Ed. Coyle, | Chas. E. Frank. |
| Draper, | 1 | 3 | .... | .... | John Mathews, | Wm. Bowen. |
| Packer No. 2, | 1 | .... | .... | .... | John Jones, | John Brennan. |
| Packer No. 3, | 2 | 5 | 1 | .... | P. Fenton, | Wm. Kaercher. |
| Packer No. 4, | 4 | 2 | .... | .... | Jas. Heaton, | Frank Scranton. |
| Packer No. 5, | 2 | 1 | 1 | .... | M. W. Price, | A. D. Brown. |
| Primrose, | 1 | 1 | .... | 2 | Wm. Palmer, | Chas. Lynn. |
| Honeybrook No. 4, | 2 | 4 | .... | 2 | Jacob R. Evans, | H. Mader. |
| Honeybrook No. 4, | .... | .... | .... | .... | P. Sheridan, | H. Mader. |
| Honeybrook No. 5, | 1 | 4 | .... | 1 | Evan T. Jones, | E. Slager. |
| Honeybrook No. 5, | .... | .... | .... | .... | P. Sommers, | E. Slager. |
| Wm. Penn, | 4 | .... | .... | .... | M. Goldin, | J. Dunlap. |
| Park No. 2, | 3 | 4 | .... | 1 | Jas. Goldsworthy, | Ed. Sykes. |
| Park No. 2, | .... | .... | .... | .... | Evan Jenkins, | Ed. Sykes. |
| Silver Brook, | 1 | 1 | 1 | 1 | S. Reese, | E. W. Miller. |
| Buck Mountain, | .... | 2 | .... | .... | J. R. Evans, | M. Myers. |
| Vulcan, | .... | 1 | .... | 1 | George K. Young, | Val. Meyers. |
| Kehley's Run, | .... | 1 | .... | .... | John Schwint, | John Keiper. |
| Oneida No. 1 Slope, | .... | 2 | .... | .... | Thos. McNamara, | Charles Miller. |
| Oneida No. 2 Slope, | 1 | .... | .... | .... | Christ Miller, | Charles Miller |
| Oneida No. 3 Slope, | 1 | .... | .... | .... | Tobias Seiwell, | Charles Miller. |
| Lawrence, | 2 | .... | .... | .... | Ben. Evans, | J. Ruebrecht. |
| Cambridge, | .... | .... | .... | .... | John McGinnis, | David James. |
| Furnace, | .... | .... | .... | .... | Thomas James, | M. Gerber. |
| North Mahanoy, | 3 | .... | 2 | .... | .... | .... |

Gilberton water shaft belonging to the Philadelphia and Reading Coal and Iron Company, is sunk to a depth of 1,075 feet to a vein four feet thick underlying the Buck Mountain vein 30 feet.

The Gilberton Colliery connects with this water shaft as also will the Draper Colliery in the near future. A tunnel 767 feet long has been driven north across the basin from the fifth lift of Draper Colliery. The distance west from the shaft to this tunnel is 1,500 feet. The present distance driven west from the shaft in the four foot vein is 350 feet, and the distance driven east in same vein from basin tunnel is 200 feet, leaving 950 feet yet to be driven to connect with the Draper Colliery. After all the connections have been made

from both collieries with the shaft, the pumps will be abandoned and the water hoisted in tanks holding from 2,000 to 2,400 gallons each. The shaft being divided into four compartments, four tanks can be used if occasion requires it.

Two magnificent hoisting engines, 45x60 inch, are now in running order and fitted up with all the most modern appliances. A steel head frame has been built on top of shaft. The ropes are steel wire, two inches in diameter.

Schuylkill Colliery, belonging to the Philadelphia and Reading Coal and Iron Company, has been permanently abandoned as a shipper, and the remaining coal to be mined will be prepared at the neighboring North Mahanoy Colliery breaker which has been remodeled and enlarged for that purpose. Connection between these two colliery mine workings has been made from North Mahanoy seven foot vein, No. 2 slope, to between the third and fourth lifts of the Schuylkill Buck Mountain vein. This tunnel connecting the two colliery workings is for water drainage as well as a transportation avenue through which the coal is hauled from Schuylkill workings to the bottom of North Mahanoy No. 2 slope.

In May, the Springdale Colliery, operated by Lentz & Co., was indefinitely abandoned, the rails and pumps were brought to the surface and the water allowed to flood the colliery. This colliery being also in the same neighborhood with the Schuylkill Colliery, and the workings having also been connected with each other in their early days of operation, Mr. R. C. Luther, general superintendent for the Philadelphia and Reading Coal and Iron Company, decided not to allow the water to rise vertically in Springdale shaft more than 20 feet and consequently made preparations to take the water at this vertical height, rather than assume the risk of any greater pressure. To make provision for pumping the water from Schuylkill and Springdale collieries a new pump slope was sunk 1,050 feet deep in the seven foot vein parallel with the North Mahanoy No. 2 hoisting slope. Two new duplex pumps, 18 inch plungers, 48 inch stroke and 36 inch cylinders, maximum speed 75 strokes per minute, were placed at the fourth lift. Two 18 inch column pipes connect with the pumps to surface, and the water discharged by these pumps is forced when required to North Mahanoy breaker to wash the coal. Between these two discharge pipe columns there is a narrow gauge track in the slope, used for men going down and up, and for the convenience of men making repairs to the pumps and their attachments.

The pump rooms are lined with a wall built of brick and cement 14 inches thick; on top of these walls are laid 75 pound T iron rails to support the roof, thus preventing the coal from fracturing off, and also preventing mine fires from the dried timber which mostly is used for roof supports.

During the year the Philadelphia and Reading Coal and Iron Company built a new breaker to take the place of the old one at their Tunnel Ridge Colliery, and have permanently abandoned the preparation of coal at their Elmwood breaker, and all the coal mined at the Elmwood Colliery will soon be prepared at the Tunnel Ridge new breaker which is capable of preparing 1,400 tons daily.

A tunnel has been driven across the basin 333 feet long from the South dip of the top split of the Mammoth vein or Elmwood side of the basin, to the north dip of the top split of the Mammoth vein or tunnel Ridge side of the basin. This tunnel connects with Tunnel Ridge new slope east gangway 1,500 feet east of slope and was driven for the purpose of hauling the coal mined from the Elmwood workings through to the new Tunnel Ridge slope. A new double track hoisting slope has been sunk 272 yards at Tunnel Ridge, through which all the coal mined at these two collieries is hoisted in "gunboats," each boat having a capacity of six tons. The coal is rumped on top into a separator, and the rock and slate separated from the coal, which is then transferred by means of a scraper line to the breaker proper for final preparation. The two Elmwood slopes are sunk to the same level with the Tunnel Ridge slopes and serve as second outlets. The workmen are also lowered and hoisted through these openings, also the mine supplies necessary for the carrying on the work in connection with both dips of the basin. A pumping station is maintained for the present at each side of the basin. The roadbeds and drainage gutters are well constructed, and the timbering of the gangways cannot be improved upon. Four fans are in operation, which keep the mine workings well ventilated.

In addition to the surface improvements at Tunnel Ridge, a new pair of hoisting engines have been erected on top of the new slope, 40 inch cylinder and 60 inch stroke, with steam boilers each 18 feet long, 6 feet diameter and with 68 four inch tubes; the horse power of each is 150.

The means of communication from top to bottom of slope is by telephone and electric alarms.

Stenographic Report of the Inquest Held by Deputy Coroner Edward Fogarty at Mahanoy City, December 4, 1897, upon the Bodies of William Steel and Martin Whittick, Outside Laborers Who Were Killed at North Mahanoy Colliery on the 2d of December, 1897.

The jurors were Michael Hobise, Harry Hume, Andrew Carlin, W. T. Evans, James Geehan and John Derrick.

The examination of witnesses was conducted by William Stein, mine inspector.

The first witness sworn was William H. Richards, district mine

superintendent of the Mahanoy District Collieries; he stated that he was superintendent over the district in which North Mahanoy Colliery is located. I received weekly a report kept daily of the condition of all ropes about the colliery. The rope in this case was reported to me by Mr. Eltringham the outside foreman to be in good order and is now in good condition, never before knew of a rope breaking so close to the socket, my opinion is that the wires in the rope became crystallized by the water which often stood in the "Braney" pit at the bottom of the plane.

On August 16, Mr. Whittick, father of one of the victims of the accident pushed a car over the top of the plane for which he was discharged.

Q. Was that rope in your opinion properly examined when last passed upon?

A. I can't say positively, as I have only the word of the man who made the examination.

Q. Do you believe the rope was re-socketed when it is claimed that it was?

A. I can only take the report for that.

Swanze Eltringham was next called, who testified that he was outside foreman at North Mahanoy Colliery at the time of the accident, and the only cause for the rope breaking inside the socket was on account of water.

Q. When was the rope re-socketed last?

A. Frank Wertz, the blacksmith, says four months ago; it is a steel wire rope, one and one-half inches in diameter.

Q. Why is it that no record was kept of the latest repairs to the rope when the rules of the Philadelphia and Reading Coal and Iron Company require it?

A. I don't know.

Q. Did not Mr. Richards, the superintendent, instruct you to re-socket your ropes every three or four months?

A. I don't remember.

Q. Did you examine the ropes daily?

A. Yes; each day.

At this point the hearing was adjourned to meet on Tuesday evening, December 7, at seven o'clock.

When the hearing was resumed on Tuesday evening, Frank Wertz was examined by Mine Inspector Stein.

Q. Are you conversant with the mine law in relation to the examination of ropes and chains in use at collieries?

A. I never had the law given to me.

Q. Don't you know daily examinations of ropes and chains must be made?

A. Only from hearsay.

Q. Were you ever told to examine the ropes daily?

A. Yes; about ten years ago.

Q. Would that not be sufficient for ten years hence?

A. I suppose it would.

Q. Can you tell when you re-socketed the rope?

A. On August 16, 1897, both ropes were re-socketed.

Thomas Morrison, hoisting engineer, then swore to the fact that the rope was re-socketed August 16, 1897.

Mr. Whittick, father of one of the victims, asked Mr. Eltringham, the outside foreman: "Do you consider the foot of that plane a safe place to work?"

A. Yes; if the rules are obeyed. And you thought so yesterday when you told me you thought no one was to blame, and you would be satisfied if the company would pay only the expenses of the funeral.

John Shellan, a laborer, was then sworn. He could not fix the blame on any one for the accident, even though a near relative had been one of the victims.

The mine Inspector then gave several rules in force by a number of large coal mining companies in relation to the care of ropes and chains in use at their collieries, and told how but three weeks before the accident while on a visit to the colliery he cautioned the men working at the bottom of the plane, not to go on the plane or in the "Barney" pit while cars were being hoisted, and that he, in company with Mr. Rees Tasker, division superintendent, and Mr. William H. Richards, district superintendent, had passed the foot of the plane about an hour before the accident occurred on their way to inspect a district of mine workings.

The coroner's jury rendered the following verdict:

"That the said William Steel and Martin Whittick came to their deaths on the 2d of December, 1897, at North Mahanoy Colliery by the breaking of a plane rope, which was due to the negligence of Swanze Eltringham, outside foreman, in not having the socket reset."

**TABLE No. 1—Showing Location, etc., of Collieries in the Sixth Anthracite District.**

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Bear Ridge, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Boston Run, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Draper, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Ellangowan, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Girard Mammoth, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Gilberton, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Hammond, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Indian Ridge, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Knickerbocker, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Kohinoor, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Mahanoy City, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Maple Hill, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| North Mahanoy, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| St. Nicholas, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Suffolk, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Schuylkill, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Shenandoah City, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Turkey Run, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Tunnel Ridge, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| West Shenandoah, | P. & R. Coal and Iron Co., | Schuylkill, | R. C. Luther, | Pottsville, Schuylkill Co. |
| Packer No. 2, | Lehigh Valley Coal Co., | Schuylkill, | W. A. Lathrop, | Wilkes-Barre, Luzerne Co. |
| Packer No. 3, | Lehigh Valley Coal Co., | Schuylkill, | W. A. Lathrop, | Wilkes-Barre, Luzerne Co. |
| Packer No. 4, | Lehigh Valley Coal Co., | Schuylkill, | W. A. Lathrop, | Wilkes-Barre, Luzerne Co. |
| Packer No. 5, | Lehigh Valley Coal Co., | Schuylkill, | W. A. Lathrop, | Wilkes-Barre, Luzerne Co. |
| Primrose, | Lehigh Valley Coal Co., | Schuylkill, | W. A. Luthrop, | Wilkes-Barre, Luzerne Co. |
| Parkins No. 2, | Lentz & Co., | Schuylkill, | Edward Reese, | Park Place, Schuylkill Co. |
| Silver Brook, | Silver Brook Coal Co., | Schuylkill, | James Long, | Silver Brook, Schuylkill Co. |
| Honey Brook No. 4, | Lehigh and Wilkes-Barre Coal Co., | Schuylkill, | E. H. Lawall, | Wilkes-Barre, Luzerne Co. |
| Honey Brook No. 5, | Lehigh and Wilkes-Barre Coal Co., | Schuylkill, | E. H. Lawall, | Wilkes-Barre, Luzerne Co. |
| Oneida, | Cress Creek Coal Co., | Schuylkill | L. C. Smith, | Drifton, Luzerne Co. |
| William Penn, | Stickney & Conyngham, | Schuylkill, | W. H. Lewis, | Shaft, Schuylkill Co. |
| Kehley's Run, | Thomas Coal Co., | Schuylkill, | Thomas Baird, | Shenandoah, Schuylkill Co. |
| Lawrence, | Lawrence Coal Co., | Schuylkill, | William J. Miller, | Frackville, Schuylkill Co. |
| Cambridge, | Cambridge Coal Co., | Schuylkill, | John J. McGinnis, | Frackville, Schuylkill Co. |
| Furnace, | Seaman & Co., | Schuylkill, | Mahlon Gerber, | Tamaqua, Schuylkill Co. |
| Stoddart Washery, | Stoddart Coal Co., | Schuylkill, | J. I. Hollenbeck, | Pottsville, Schuylkill Co. |
| Brookwood Washery, | Brookwood Coal Co., | Schuylkill, | Henry Meyers, | 1428 S. Penn Sq., Phiadelphia. |
| Monarch Washery, | Leisenring & Pollock, | Schuylkill, | James Pollock, | Wilkes-Barre, Luzerne Co. |
| Seaman Washery, | Seaman Bro., | Schuylkill, | Mahlon Gerber, | Tamaqua, Schuylkill Co. |
| Star Washery, | Audenreid Coal Co., | Schuylkill, | John G. Scott, | Hazleton, Luzerne Co. |
| Girardville Washery, | B. N. Bertolet & Co., | Schuylkill, | B. N. Bertolet, | Girardville, Schuylkill Co. |
| Carson Washery, | Carson Coal Company, | Schuylkill, | H. E. Rissinger, | Audenreid, Schuylkill Co. |

TABLE NO. 2.—Gives the Total Number of Tons of Coal Mined in each Colliery, Number of Days Worked, Number of Employes, Number of Persons Killed and Injured, Number of Kegs of Pow der used, etc., in the Sixth Anthracite District for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs of powder used. | Number of pounds of dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bear Ridge, | Schuylkill, | 208,698 | 29,856 | 3,190 | 175,652 | 143 | 660 | .... | 2 | 1,018 | 10,251 | 46 | 82 | 1 outside |
| Boston Run, | Schuylkill, | 126,312 | 21,302 | 202 | 104,808 | 141 | 407 | .... | 3 | 1,009 | 16,062 | 8 | 50 | 1 outside |
| Draper, | Schuylkill, | 157,127 | 24,384 | 1,369 | 131,374 | 142 | 530 | 1 | 3 | 2,968 | 25,290 | 10 | 54 | ..... |
| Ellangowan, | Schuylkill, | 321,517 | 41,238 | 730 | 279,549 | 141 | 956 | 6 | 3 | 9,696 | 4,946 | 12 | 112 | 1 outside |
| Girard Mammoth, | Schuylkill, | 86,650 | 20,452 | 714 | 65,484 | 142 | 324 | .... | 1 | 1,476 | 1,469 | 25 | 44 | ..... |
| Gilberton, | Schuylkill, | 166,802 | 33,559 | 1,092 | 132,151 | 139 | 607 | 2 | 3 | 2,587 | 31,883 | 14 | 56 | 1 outside |
| Hammond, | Schuylkill, | 146,182 | 24,927 | 4,316 | 116,938 | 143 | 469 | 2 | .... | 2,598 | 10,256 | 38 | 56 | 1 outside |
| Indian Ridge, | Schuylkill, | 168,343 | 11,576 | 1,945 | 148,822 | 140 | 565 | 2 | 4 | 4,193 | 3,700 | 8 | 55 | 1 outside |
| Knickerbocker, | Schuylkill, | 219,467 | 20,122 | 7,283 | 192,062 | 138 | 718 | 3 | 3 | 5,118 | 17,202 | 28 | 51 | 2 outside |
| Kohinoor, | Schuylkill, | 123,814 | 18,525 | ..... | 105,289 | 136 | 461 | 1 | 1 | 2,893 | 1,784 | 22 | 49 | 1 outside |
| Mahanoy City, | Schuylkill, | 143,645 | 21,611 | 23,977 | 98,057 | 143 | 512 | 1 | 1 | 3,278 | 9,817 | 28 | 62 | 1 outside |
| Maple Hill, | Schuylkill, | 378,025 | 15,689 | 10 | 362,325 | 143 | 1,234 | 6 | 4 | 11,847 | 6,441 | 28 | 95 | 1 outside |
| North Mahanoy, | Schuylkill, | 156,543 | 22,245 | 542 | 133,756 | 137 | 626 | 3 | 2 | 3,659 | 9,106 | 16 | 52 | ..... |
| St. Nicholas, | Schuylkill, | 164,566 | 30,760 | 269 | 133,597 | 143 | 565 | 3 | 1 | 3,831 | 7,569 | 26 | 74 | 2 outside |
| Suffolk, | Schuylkill, | 259,017 | 19,945 | 977 | 238,095 | 143 | 823 | 1 | .... | 6,801 | 8,443 | 22 | 83 | 1 outside |
| Schuylkill, | Schuylkill, | 71,867 | 4,251 | ..... | 67,616 | 116 | 350 | 2 | .... | 2,359 | 3,022 | 20 | 39 | ..... |
| Shenandoah City, | Schuylkill, | 193,809 | 29,502 | 17,494 | 146,812 | 140 | 665 | 3 | 5 | 4,964 | 2,916 | 26 | 64 | 1 outside |
| Turkey Run, | Schuylkill, | 130,199 | 7,627 | ..... | 122,572 | 140 | 470 | .... | 1 | 3,071 | 5,104 | 14 | 50 | 1 outside |
| Tunnel Ridge, | Schuylkill, | 123,598 | 19,376 | ..... | 104,222 | 141 | 567 | 5 | 3 | 2,470 | 5,964 | 26 | 72 | ..... |
| West Shenandoah, | Schuylkill, | 116,492 | 9,404 | 16 | 107,062 | 140 | 432 | 2 | .... | 3,017 | 1,953 | 16 | 43 | ..... |
| Packer No. 2, | Schuylkill, | 103,336 | 13,714 | 679 | 88,942 | 104 | 339 | 1 | .... | 845 | 17,535 | 13 | 34 | ..... |
| Packer No. 3, | Schuylkill, | 171,030 | 18,292 | 1,482 | 151,256 | 169 | 460 | 3 | 3 | 2,376 | 3,190 | 27 | 39 | ..... |
| Packer No. 4, | Schuylkill, | 173,299 | 25,631 | 239 | 147,409 | 173 | 398 | 4 | 2 | 3,185 | 3,593 | 27 | 36 | ..... |
| Packer No. 5, | Schuylkill, | 111,094 | 12,617 | 4,223 | 94,254 | 86 | 641 | 3 | 1 | 2,737 | 6,350 | 32 | 37 | ..... |
| Primrose, | Schuylkill, | 135,678 | 7,236 | 3,318 | 125,124 | 181 | 433 | 1 | 3 | 3,307 | 2,040 | 7 | 35 | ..... |
| Park No. 2, | Schuylkill, | 238,129 | 19,448 | 817 | 217,864 | 141 | 847 | 3 | 5 | 6,469 | 2,850 | 44 | 101 | 2 outside |
| Silver Brook, | Schuylkill, | 253,106 | 18,616 | 1,786 | 232,703 | 220 | 543 | 2 | 2 | 2,841 | 4,300 | 10 | 30 | 2 outside |
| Honey Brook No. 4, | Schuylkill, | 239,080 | 38,767 | 4,169 | 196,144 | 144 | 878 | 2 | 6 | 4,855 | 12,450 | 37 | 97 | 3 outside |

TABLE NO. 2. —Continued.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs of powder used. | Number of pounds of dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Honey Brook No. 5, | Schuylkill, | 285,612 | 57,869 | 16 | 227,727 | 147 | 896 | 1 | 5 | 5,288 | 37,864 | 56 | 62 | 4 outside |
| Oneida, | Schuylkill, | 279,188 | 32,833 | 2,414 | 243,941 | 191 | 726 | 2 | 2 | 5,868 | 5,442 | 43 | 87 | 4 outside |
| William Penn, | Schuylkill, | 257,993 | 26,331 | 1,706 | 229,956 | 201 | 844 | 4 | .... | 6,825 | 8,250 | 38 | 60 | 1 outside |
| Buck Mountain, | Schuylkill, | 141,433 | 12,960 | 581 | 127,892 | 138 | 418 | .... | 2 | 3,780 | 3,150 | 30 | 40 | 4 outside |
| Vulcan, | Schuylkill, | 150,417 | 8,639 | 1,125 | 140,653 | 139 | 410 | .... | 2 | 5,066 | 2,100 | 16 | 40 | 1 outside |
| Kehleys Run, | Schuylkill, | 84,582 | 3,477 | 485 | 80,620 | 151 | 255 | .... | 1 | 12,700 | 1,604 | 24 | 28 | 1 outside |
| Lawrence, | Schuylkill, | 116,146 | 17,500 | 1,388 | 97,286 | 179 | 405 | 2 | .... | 125 | 23,200 | 30 | 40 | ..... |
| Cambridge, | Schuylkill, | 26,659 | 846 | 1,176 | 24,637 | 169 | 106 | .... | .... | 1,200 | 1,200 | 3 | 8 | ..... |
| Furnace, | Schuylkill, | 26,018 | 1,500 | 320 | 24,197 | 174 | 69 | .... | .... | 310 | 2,550 | 6 | 8 | ..... |
| Stoddart Washery, | Schuylkill, | 71,472 | 2,448 | ..... | 69,024 | 185 | 68 | .... | .... | ..... | ..... | 5 | 11 | ..... |
| Brookwood Washery, | Schuylkill, | 53,872 | 4,000 | ..... | 49,872 | 154 | 21 | .... | .... | ..... | ..... | 5 | 1 | ..... |
| Monarch Washery, | Schuylkill, | 13,739 | 305 | ..... | 13,253 | 122 | 60 | .... | .... | ..... | ..... | 3 | 4 | ..... |
| Seaman Washery, | Schuylkill, | 13,591 | 1,800 | 15 | 11,776 | 96 | 58 | .... | .... | 147 | 450 | 5 | 3 | 1 outside |
| Star Washery, | Schuylkill, | 23,893 | 1,205 | ..... | 22,688 | 120 | 118 | .... | .... | ..... | ..... | 4 | 5 | ..... |
| Girardville Washery, | Schuylkill, | 17,891 | 656 | 7 | 17,228 | 108 | 29 | .... | .... | ..... | ..... | 2 | ..... | ..... |
| Carson Washery, | Schuylkill, | 25,999 | 1,000 | ..... | 24,999 | 147 | 113 | .... | .... | ..... | ..... | 3 | 3 | ..... |
| Total, | | 6,475,930 | 760,041 | 96,032 | 5,625,688 | ..... | 21,056 | 73 | 73 | 146,777 | 233,528 | 903 | 2,073 | 39 |

TABLE No. 3.—Showing the Number of each Class of Employes at each Colliery in the Sixth Anthracite District during the Year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside.. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Bear Ridge, | 2 | 7 | 75 | 65 | 27 | 4 | 162 | 342 | 2 | 8 | 34 | 152 | 120 | 2 | 318 | 660 |
| Boston Run, | 1 | 4 | 71 | 47 | 17 | 4 | 85 | 229 | 1 | 5 | 20 | 97 | 53 | 2 | 178 | 407 |
| Draper, | 1 | 6 | 100 | 61 | 30 | 3 | 133 | 334 | 2 | 4 | 31 | 96 | 61 | 2 | 196 | 530 |
| Ellangowan, | 2 | 9 | 225 | 170 | 45 | 8 | 138 | 597 | 2 | 9 | 22 | 214 | 109 | 3 | 359 | 956 |
| Girard Mammoth, | 1 | 1 | 75 | 7 | 19 | 2 | 71 | 176 | 1 | 5 | 20 | 72 | 49 | 1 | 148 | 324 |
| Gilberton, | 1 | 6 | 93 | 92 | 15 | 4 | 127 | 338 | 2 | 8 | 25 | 135 | 97 | 2 | 269 | 607 |
| Hammond, | 1 | 5 | 86 | 89 | 10 | 1 | 50 | 242 | 2 | 7 | 25 | 113 | 78 | 2 | 227 | 469 |
| Indian Ridge, | 3 | 4 | 98 | 104 | 25 | 6 | 46 | 286 | 3 | 7 | 25 | 150 | 91 | 3 | 279 | 565 |
| Knickerbocker, | 2 | 8 | 191 | 62 | 4 | 6 | 96 | 369 | 2 | 6 | 22 | 197 | 120 | 2 | 349 | 718 |
| Kohinoor, | 1 | 6 | 156 | 51 | 28 | 5 | 47 | 294 | 2 | 7 | 20 | 90 | 46 | 2 | 167 | 461 |
| Mahanoy City, | 2 | 2 | 91 | 91 | 36 | 11 | 80 | 313 | 2 | 4 | 22 | 119 | 49 | 3 | 199 | 512 |
| Maple Hill, | 2 | 8 | 409 | 125 | 48 | 21 | 138 | 751 | 1 | 6 | 25 | 290 | 158 | 3 | 483 | 1,234 |
| North Mahanoy, | 2 | 2 | 125 | 93 | 20 | 8 | 95 | 345 | 1 | 6 | 17 | 133 | 122 | 2 | 281 | 626 |
| St. Nicholas, | 1 | 3 | 85 | 123 | 22 | 6 | 95 | 335 | ..... | 7 | 13 | 103 | 105 | 2 | 230 | 565 |
| Suffolk, | 1 | 4 | 211 | 164 | 24 | 11 | 119 | 534 | 2 | 7 | 18 | 140 | 119 | 3 | 289 | 823 |
| Schuylkill, | 1 | 3 | 77 | 39 | 20 | 6 | 66 | 212 | 1 | 4 | 10 | 89 | 33 | 1 | 138 | 350 |
| Shenandoah City, | 2 | 3 | 143 | 125 | 36 | 19 | 71 | 399 | 2 | 8 | 23 | 142 | 89 | 2 | 266 | 665 |
| Turkey Run, | 2 | 4 | 145 | 37 | 20 | 12 | 77 | 297 | 2 | 4 | 12 | 97 | 56 | 2 | 173 | 470 |
| Tunnel Ridge, | 3 | 4 | 128 | 64 | 32 | 6 | 107 | 345 | 2 | 8 | 36 | 82 | 91 | 3 | 222 | 567 |
| West Shenandoah, | 1 | 4 | 112 | 48 | 18 | 6 | 57 | 246 | 2 | 5 | 16 | 88 | 74 | 1 | 186 | 432 |
| Packer No. 2, | 1 | 4 | 58 | 51 | 9 | 2 | 68 | 193 | 1 | 13 | 12 | 50 | 68 | 2 | 146 | 339 |
| Packer No. 3, | 1 | 3 | 126 | 63 | 15 | 5 | 71 | 284 | 1 | 12 | 17 | 69 | 75 | 2 | 176 | 460 |
| Packer No. 4, | 1 | 3 | 78 | 77 | 22 | 3 | 58 | 242 | 1 | 9 | 14 | 56 | 74 | 2 | 156 | 398 |
| Packer No. 5, | 2 | 6 | 126 | 146 | 32 | 4 | 82 | 388 | 1 | 13 | 12 | 113 | 101 | 2 | 242 | 630 |
| Primrose, | 1 | 2 | 134 | 22 | 25 | 9 | 72 | 265 | 1 | 7 | 9 | 86 | 63 | 2 | 168 | 433 |
| Park No. 2, | 2 | 2 | 210 | 174 | 45 | 8 | 98 | 539 | 1 | 17 | 20 | 207 | 59 | 4 | 308 | 847 |

TABLE NO. 3.—Continued.

| Names of Collieries. | Occupations of Persons Employed Inside.. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Silver Brook | 1 | 1 | 39 | 31 | 12 | 3 | 25 | 112 | 3 | 11 | 14 | 210 | 190 | 3 | 431 | 543 |
| Honey Brook No. 4 | 2 | 2 | 179 | 132 | 67 | 5 | 186 | 573 | 1 | 13 | 41 | 134 | 90 | 3 | 282 | 855 |
| Honey Brook No. 5 | 3 | 1 | 138 | 66 | 52 | 3 | 341 | 604 | 1 | 16 | 52 | 130 | 94 | 3 | 296 | 900 |
| Oneida | 3 | 3 | 231 | 29 | 35 | 21 | 68 | 390 | 2 | 14 | 34 | 228 | 73 | 2 | 353 | 743 |
| William Penn | 2 | 4 | 179 | 172 | 20 | 9 | 128 | 514 | 1 | 15 | 34 | 225 | 56 | 5 | 336 | 850 |
| Buck Mountain | 1 | 1 | 141 | 66 | 21 | 1 | 26 | 257 | 1 | 8 | 22 | 83 | 40 | 7 | 161 | 418 |
| Vulcan | 1 | 1 | 178 | 33 | 9 | 9 | 11 | 242 | 1 | 7 | 12 | 91 | 50 | 7 | 168 | 410 |
| Kehley's Run | 2 | 1 | 63 | 10 | 10 | 4 | 39 | 129 | 1 | 7 | 12 | 58 | 46 | 2 | 126 | 255 |
| Lawrence | 1 | 3 | 66 | 70 | 8 | 9 | 47 | 204 | 1 | 9 | 30 | 107 | 52 | 2 | 201 | 405 |
| Cambridge | 1 | ..... | 30 | 20 | 4 | ..... | 15 | 70 | 1 | 2 | 3 | 20 | 9 | 1 | 36 | 106 |
| Furnace | 1 | ..... | 12 | 9 | 4 | ..... | 4 | 30 | 1 | 2 | 4 | 22 | 10 | 1 | 40 | 70 |
| Stoddart Washery | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 2 | 6 | 19 | 37 | 2 | 68 | 68 |
| Brookwood Washery | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 2 | 1 | 2 | 14 | 1 | 21 | 21 |
| Seaman Washery | 1 | ..... | 4 | 6 | 1 | ..... | ..... | 12 | 1 | 2 | 4 | 12 | 26 | 1 | 46 | 58 |
| Monarch Washery | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 4 | 28 | 32 | ..... | 66 | 66 |
| Star Washery | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 3 | 3 | 54 | 55 | 2 | 118 | 118 |
| Girardville Washery | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 2 | 4 | 20 | 1 | 29 | 29 |
| Carson Washery | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 2 | 4 | 62 | 42 | 2 | 113 | 113 |
| Total | 59 | 130 | 4,688 | 2,824 | 878 | 244 | 3,199 | 12,032 | 62 | 293 | 802 | 4,669 | 3,096 | 102 | 9,024 | 21,056 |

TABLE No. 4.—List of Fatal Accidents that Occurred in and about the Mines of the Sixth Anthracite District, for the Year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Jan. 11, | Michael Ambrosey, | Miner, | 25 | M. | 1 | Honey Brook No. 4, | Schuylkill, | He had fired a shot and returned to face of chamber to dress off the loose coal, when a piece fell on him, killing him instantly. |
| 19, | Martin Rowland, | Locomotive engin'r. | 29 | S. | .... | Packer No. 4, | Schuylkill, | He was pushing three loaded dumpers up grade, west side of breaker. In manipulating to get the dumpers up the grade the draw head came out and the engine ran away and over the end of dirt bank track, instantly killing him. |
| 19, | Peter Stank, | Laborer, | 25 | S. | .... | Shenandoah City, | Schuylkill, | While loading a buggy a piece of top slate fell on him. Died on the 25th. |
| 27, | Alexander Tenant, | Miner, | 53 | M. | 5 | Tunnel Ridge, | Schuylkill, | After firing a shot he had just reached head of manway when a piece of coal fell, killing him instantly. |
| Feb. 10, | John Shumski, | Miner, | 25 | M. | 1 | Park No. 3 Slope, | Schuylkill, | These men were "robbing" pillars and had taken the pillars all out, down to a heading, with the exception of some top coal which fell from a "slip," killing them both instantly. |
| 10, | Thos. Karnica, | Miner, | 24 | S. | .... | Park No. 3 Slope, | Schuylkill, | |
| 10, | George Bocavage, | Miner, | 33 | M. | 2 | West Shenandoah, | Schuylkill, | This man had fired a shot and returned to face of breast; according to evidence I got from his partner he made no examination of the surroundings and a piece of "bony coal" fell on him. He died in the State Hospital on March 8. |
| 12, | Colfax Brown, | Leader boss, | 3 | M. | 1 | Ellangowan, | Schuylkill, | A piece of slate got fast in one of the chutes he had charge of, and he was removing the fine coal from around it when it slipped, squeezing him against a prop, killing him. |

TABLE NO. 4.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| 12, | John Mitkus, ..... | Miner, ..... | 41 | M. | ... | Ellangowan, ..... | Schuylkill, ..... | This man, according to the evidence I received, cut the squib before putting it into the hole to fire a blast. The shot fired, as a matter of course, before he got away, breaking his leg. He died on the 4th of March in the State Hospital. |
| 25, | George Weeks, ..... | Starter, ..... | 20 | S.. | ... | Gilberton, ..... | Schuylkill, ..... | The coal stuck in breast and made a sudden rush and knocked the battery out, killing him. |
| Mar. 23, | Joseph Sargant, ..... | Loader, ..... | 30 | S. | .... | Wm. Penn, ..... | Schuylkill, ..... | Fatally burned by an explosion; died on the 25th. |
| 28, | Wm. Lavenburg, ..... | Driver, ..... | 22 | S. | .... | Wm. Penn, ..... | Schuylkill, ..... | Fatally burned by an explosion; died on the 29th. |
| 28, | Patrick McIntire, ..... | Ass't fire boss, .... | 44 | M. | 9 | Schuylkill, ..... | Schuylkill, ..... | Killed by falling down shaft. The accident occurred on Sunday morning; he was about to descend the shaft to make his usual Sunday examination of the mine workings, but how he fell down the shaft could not be ascertained. |
| April 1, | Wm. Proplusky, ..... | Miner, ..... | 30 | S. | .... | Draper, ..... | Schuylkill, ..... | Fatally burned by powder; died on the 10th. While filling a cartridge a spark from his lamp fell into the keg. |
| 5, | John Caddish, ..... | Miner, ..... | 28 | S. | .... | West Shenandoah, ..... | Schuylkill, ..... | Fatally injured in going back to a blast he had ignited, thinking the squib had missed. Died April 13. |
| 15, | Adam Kristolaitis, ..... | Laborer, ..... | 23 | M | 1 | Wm. Penn, ..... | Schuylkill, ..... | Killed instantly by a fall of coal while cleaning out a leg hole in East Mammoth gangway, No. 2 slope. |
| May 4, | Matt. Shumski, ..... | Laborer, ..... | 30 | M. | .... | Ellangowan, ..... | Schuylkill, ..... | Killed instantly in face of gangway by a fall of rock. |
| 10, | Paul Sobeck, ..... | Laborer, ..... | 52 | M. | 6 | Honey Brook No. 6, .... | Schuylkill, ..... | Killed instantly by being squeezed between cars. |
| June 15, | Edward Lynch, ..... | Door boy, ..... | 15 | .... | .... | Maple Hill, ..... | Schuylkill, ..... | Fatally injured while coupling cars; died on the 16th. This boy left his door and was doing work not assigned to him. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| June | 28, | John Eisman, | Miner, | 49 | M. | 1 | North Mahanoy, | Schuylkill, | Fatally injured by a fall of dividing slate while cleaning out coal from a heading in which he worked. Died in State Hospital on the 29th. |
| | 30, | John Goesby, | Miner, | 28 | S. | .... | Maple Hill, | Schuylkill, | Fatally injured; died on the 19th. He der which he ignited while filling a cartridge. He had a lamp on his hat and a spark fell into the keg. |
| July | 2, | Wm. Deipster, | Driver, | 20 | S. | .... | Hammond, | Schuylkill, | Fatally injured; died on the 19th. He attempted to get on a car coming from head of slope, and the car ran over him. He was away from his regular place of work at the time. |
| | 2, | Samuel Britton, | Slate picker, | 13 | .... | .... | Primrose, | Schuylkill, | Killed by falling into a scraper line. He was told not to go there by the boss. |
| | 7, | Daniel Calbert, | Door boy, | 15 | .... | .... | Hammond, | Schuylkill, | Fatally injured; died on the 28th. He tried to jump on moving cars and fell under. |
| | 12, | Joseph Ripho, | Miner, | 35 | M. | 4 | Oneida, | Schuylkill, | Killed by a fall of coal at face of breast. |
| | 13, | John Holkyard, | Miner, | 38 | M. | 1 | Schuylkill, | Schuylkill, | Fatally injured by a rush of coal from face of breast; died on the 16th. |
| | 23, | Michael Grady, | Miner, | 40 | M. | 4 | Packer No. 5, | Schuylkill, | Killed by a blast in gangway; cut the squib too short, giving himself but little time to get away from the shot. |
| | 26, | Joseph Zacherousky, | Laborer, | 25 | S. | ... | St. Nicholas, | Schuylkill, | Fatally burned by an explosion of gas; died August 7. He went to face of breast with a safety lamp but had a naked lamp on his cap. |
| | 29, | Charles Kallis, | Laborer, | 34 | S. | .... | Ellangowan, | Schuylkill, | Killed by a fall of coal in gangway; the face was in advance of the last timber which had been stood. The miner was responsible for this man's death. |
| Aug. | 6, | George Flutter, | Carpenter, | 54 | M. | .... | Tunnel Ridge, | Schuylkill, | Killed by falling from steamboat picking floor, a distance of 42 feet. He was working at the erection of a new breaker. |
| | 7, | Frank Kadish, | Miner, | 24 | S. | .... | Packer No. 3, | Schuylkill, | Fatally injured by a fall of coal; died on the 8th. |
| | 10, | Charles Solusky, | Laborer, | 31 | S. | .... | Mahanoy City, | Schuylkill, | Killed by a fall of coal—the fault of the miner in not timbering. |
| | 11, | John Fleming, | Miner, | 31 | S. | .... | Packer No. 2, | Schuylkill, | Fatally injured by a timber falling on him; died on the 12th. |
| | 18, | Jas. Thomas, | Slate picker, | 17 | S. | .... | Gilberton, | Schuylkill, | Killed; caught in breaker scraper line which he was attending to. |
| | 19, | Mike Yekamovige, | Miner, | 22 | M. | 2 | Packer No. 3, | Schuylkill, | Killed by a fall of coal in No. 3 breast, seventh lift, west seven foot vein. |
| | 23, | Felix McCloskie, | Miner, | 22 | M. | 2 | Knickerbocker, | Schuylkill, | Killed instantly in going back to a shot, thinking it had missed fire. |
| | 27, | John Urbin, | Laborer, | 32 | M. | 1 | Ellangowan, | Schuylkill, | Killed by a fall of coal in Shenandoah City drift, Mammoth vein, while "robbing." |
| Sept. | 1, | John Metcalf, | Miner, | 70 | M. | 4 | St. Nicholas, | Schuylkill, | Killed by a fall of rock at face. |

TABLE No. 4.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Sept. 4, | Joseph Shondis, | Driver, | 16 | S. | .... | Suffolk, | Schuylkill, | Killed while riding down hoisting slope. At this colliery the workmen are expected to walk down and up, and a traveling way is provided for that purpose. |
| 7, | Peter Lavish, | Miner, | 25 | S. | .... | Tunnel Ridge, | Schuylkill, | Fatally injured by a fall of slate squeezing him against a prop. Died on the eighth |
| 17, | John Bordulis, | Miner, | 40 | M. | .... | Tunnel Ridge, | Schuylkill, | Fatally burned by powder; a spark from his lamp fell into the cartridge he was filling. Died on the 26th. |
| 23, | Frank Kavasiak, | Miner, | 36 | M. | 2 | Packer No. 4, | Schuylkill, | Fatally burned by an explosion of gas. They went up into a breast with a naked lamp before seeing the fire boss in the morning. Kavasiak died on the 25th and Novacteo on the 27th. |
| 23, | Peter Novateo, | Miner, | 38 | M. | .... | Packer No. 4, | Schuylkill, | |
| 23, | Joseph Paff, | Laborer, | 19 | S. | .... | Shenandoah City, | Schuylkill, | Fatally burned by an explosion of gas. He, together with his father, went into an old breast with naked lamps to lift sheet iron and exploded the gas. Peter Paff, the father, testified that he was to blame. Joseph died on the first of October. |
| 28, | John Youngalavage, | Miner, | 32 | M. | 4 | Kohinoor, | Schuylkill, | Fatally injured by a fall of coal; died on the 10th of December in the Miners' Hospital. After firing a shot he returned to dress off when a fall occurred which broke his back. |
| 28, | John Welsh, | Miner, | 52 | M. | ... | Maple Hill, | Schuylkill, | Killed by a fall of coal from upper side of heading he was cleaning out, which was not properly timbered. |
| 29, | Richard Flynn, | Miner, | 73 | M. | 5 | Indian Ridge, | Schuylkill, | Fatally injured by a fall of a very small piece of coal. This man was engaged at what is termed "robbing back" and to all appearances the work was very safe. He was one of our most practical miners. He died on his way home. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Oct. | 4, | Alex. Gasdofsky, | Miner, | 40 | M. | 3 | Maple Hill, | Schuylkill, | Killed by a fall of slate; his partner warned him not to work under it as he had tried to pull it down. |
| | 6, | Anth. Braskitus, | Miner, | 29 | S. | .... | Ellangowan, | Schuylkill, | Fatally injured an died on the 9th in the Miners Hospital. He missed his footing and fell down the breast manway on a pitch of 80 degrees. |
| | 14, | Steve Sametsky, | Miner, | 28 | M. | .... | Honey Brook No. 4, | Schuylkill, | Killed by a fall of top slate while putting coal on sheet iron. |
| | 15, | William Yagur, | Miner, | 30 | M. | 1 | St. Nicholas, | Schuylkill, | While drilling a hole a piece of top coal fell, killing him. |
| | 18, | Peter Sennitis, | Laborer, | 28 | M. | .... | Lawrence, | Schuylkill, | Instantly killed by falling down manway. He fell a distance of 70 feet on a pitch of 55 degrees. |
| | 18, | John Reese, | Miner, | 26 | M. | .... | Silver Brook, | Schuylkill, | Killed by a fall of coal from upper side of counter gangway. Fall was caused by insufficient timbering. |
| | 18, | Wm. Kennedy, | Miner, | 38 | W. | 1 | Tunnel Ridge, | Schuylkill, | Fatally injured and died on the 26th in Miners Hospital. He went back to a shot thinking it had missed fire. |
| | 20, | William Kropp, | Tending rolls, | 16 | S. | .... | North Mahanoy, | Schuylkill, | Fatally injured and died the same day. He stepped into the rolls on account of having neglected to put the cover on. |
| | 28, | John Schaeffer, | Miner, | 50 | M. | 7 | Shenandoah City, | Schuylkill, | Killed by a fall of coal. He was "robbing" pillars and was sitting against side of pillar when the fall came. |
| | 28, | Anth. Mackyss, | Miner, | 25 | M. | .... | Packer No. 5, | Schuylkill, | Killed by a fall of coal at face of breast. He had fired a shot and was dressing off when a fall took place, covering him, and before he could be recovered he died. |
| Nov. | 7, | Mathew Sweeney, | Slate picker, | 11 | .... | .... | Packer No. 5, | Schuylkill, | Fatally injured by falling on scraper line in breaker. He was late in getting to work after the whistle blew and entered the breaker by a way which caused him to step over machinery which was in motion, to avoid being noticed by the man in charge; died the following day. |
| | 11, | Anth. Leboski, | Miner, | 39 | M. | 2 | Packer No. 4, | Schuylkill, | Fatally injured by an explosion of gas; died on the 21st. He fired a shot in face of breast and returned to work with a naked lamp. |
| | 23, | Solomon Secusky, | Miner, | 28 | S. | .... | Maple Hill, | Schuylkill, | Killed by a blast in a gangway. The evidence showed that he shortened the squib and only got a few feet away when the shot fired, throwing the coal against his head. |
| | 27, | Curtis Younas, | Laborer, | 21 | S. | .... | Park No. 2 Slope, | Schuylkill, | Killed by a fall of coal in a chute, No. 2 South Dip gangway. |

TABLE No. 4.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Dec. 2, | Wm. Steel, ..... | ..... | 55 | M. | 5 | North Mahanoy, ..... | Schuylkill, ..... | These two men were killed at the bottom of dirt plane outside. Contrary to orders given them by the foreman and myself, for I had occasion to pass those two men 45 minutes before they lost their lives, they were shoveling mud out of the "Barney pit." I told them not to get there while the car was in motion; they said they never did. However, they got into the pit, and as the Barney and dumper neared the top of the plane the rope broke at socket, causing the Barney and dumper to run down, killing them instantly. |
| 2, | Martin Whitock, ..... | ..... | 19 | S. | .... | North Mahanoy, ..... | Schuylkill, ..... | |
| 10, | John Conrad, ..... | ..... | 30 | S. | .... | Silver Brook, ..... | Schuylkill, ..... | Killed while drilling a hole at surface stripping by a large quantity of coal slipping from the bottom slate; the vein at this point is 40 feet thick on an angle of 50 degrees. |
| 11, | Francisco Sartori, ..... | Miner, ..... | 36 | M. | .... | Oneida Slope No. 2, .... | Schuylkill, ..... | Smothered by a rush of coal. This man was loading out breast No. 49 in No. 2 West gangway. There was a good stream of water coming down this breast and it appears that the water did not leak freely through the creca battery and as the chute was full of fine coal and the battery in good running order, as soon as he lifted the board to load his car the water and fine coal came with a rush, completely covering him and smothering him to death. |
| 13, | John Connors, ..... | Driver, ..... | 19 | S. | .... | Lawrence, ..... | Schuylkill, ..... | Fatally injured by falling under cars; died in the Miners Hospital. |
| 14, | Wm. Briskey, ..... | Miner, ..... | 40 | W. | 2 | North Mahanoy, ..... | Schuylkill, ..... | Killed by a fall of coal in breast No. 3 Holmes vein, No. 16 counter. |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Dec. | 15, | Charles Munshumski, ... | Laborer, .. ..... | 25 | S. | .... | Kohinoor, ..... ..... | Schuylkill, ..... | Killed by a fall of coal. |
| | 23, | Nicholas Doyle, ..... | Miner, ..... | 45 | M. | 6 | Maple Hill, ..... | Schuylkill, ..... | Killed by a fall of coal which he was barring down. |
| | 27, | Simon Augustitus, ..... | Laborer, ..... | 25 | S. | .... | Indian Ridge, . ..... | Schuylkill, ..... | Killed instantly while working at face of gangway by a fall of coal. |
| | 27, | Anthony Maiglus, ..... | Miner, ..... | 35 | M. | .... | Wm. Penn, ..... | Schuylkill, ..... | Suffocated by gas in breast No. 29, No. 3 Slope, Buck Mountain vein. The fire boss in charge reported gas in this breast and ordered the miners to repair the plank manway. He allowed Maiglus and his partner to construct their manways, putting on the planks six inches apart, and the air current crossed the breast before first reaching the face, which was the cause of the gas accumulating. After working in the intake manway they went up the downcast manway and Maiglus fell in the traveling gas. The fire boss was to blame in not superintending the displacing of the gas in person. |
| | 27, | Peter Velotsky, ..... | Laborer, ..... | 26 | S. | .... | Packer No. 3, ..... | Schuylkill, ..... | Fatally injured by being thrown under cars on gangway; died on his way to the hospital. This man had worked only one day at this colliery and was, as far as I could learn, a "greenhorn." |

TABLE No. 5.—List of Non-Fatal Accidents that Occurred in and about the Mines of the Sixth Anthracite District, for the Year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Jan. 4. | Edward Devers, | Miner, | 40 | M. | Knickerbocker, | Schuylkill, | Leg fractured by having been caught by coal in chute. |
| 11. | George Kilgour, | Mine foreman, | 76 | M. | Mahanoy City, | Schuylkill, | Leg fractured; while going down extension of slope one of the men started a skid down, which struck him on the leg. |
| 12. | Robert S. Jones, | Road man, | 30 | M. | Indian Ridge, | Schuylkill, | Arm broken; struck by "buggy." |
| 12. | Thomas Thomas, | Machinist, | 23 | M. | Primrose, | Schuylkill, | Arm cut off above the elbow by having been caught by a set screw in shaft. |
| 14. | Andra Swerra, | Car loader, | 42 | M. | Vulcan, | Schuylkill, | Arm cut off below elbow by having been caught between rope and snubbing post. |
| Feb. 9. | Thomas Cresby, | Laborer, | 42 | M. | Primrose, | Schuylkill, | Cut severely on face and body by coal from a blast. |
| 9. | Thos. Mediavage, | Miner, | 30 | M. | Packer No. 3, | Schuylkill, | Slightly burned by an explosion of gas. |
| 12. | John Mitkus, | Miner, | 41 | M. | Ellangowan, | Schuylkill, | Leg fractured by a fall of coal. |
| 19. | John Goddate, | Miner, | 30 | M. | St. Nicholas, | Schuylkill, | Burned by powder; a spark from his lamp fell into the keg. |
| 24. | Wm. Wylanus, | Miner, | 28 | S. | Maple Hill, | Schuylkill, | Severely injured about the head and back. He was about to fire a shot and cut the squib too short, causing the shot to fire before he reached a place of safety. |
| Mar. 3. | Michael Coyle, | Miner, | 42 | S. | Girard Mammoth, | Schuylkill, | Leg and arm severely bruised; had two holes charged with powder; one shot fired and he waited for the other to explode; thinking it might have missed fire, he went back and when within a few yards of the hole, the blast exploded. |
| 5. | George Fenchock, | Laborer, | 22 | S. | Honey Brook No. 4, | Schuylkill, | Arm broken; he was loading a car at No. 10 stripping when a piece of rock rolled from bank on him. |
| 16. | Michael Kerrigan, | Bank boss, | 45 | M. | Indian Ridge jig house,. | Schuylkill, | Leg amputated as the result of having been struck by a frozen portion of the culm bank. |
| 29. | Anthony Mackenavage, | Miner, | 45 | M. | Knickerbocker, | Schuylkill, | Back severely bruised by a fall of coal. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 26, | Wm. Pebdus, | Laborer, | 38 | M. | Primrose, | Schuylkill, | Leg fractured by a fall of coal. |
| April | 2, | Wm. Propluskie, | Miner, | 28 | S. | Draper, | Schuylkill, | Severely burned by powder. He was going up chute with a shot of powder and in some way it became ignited from his lamp. |
| | 3, | John Lantz, | Miner, | 45 | M. | Honey Brook No. 4, | Schuylkill, | He was filling a cartridge with powder when a spark from his lamp fell into the cartridge. |
| | 4, | Samuel Townsend, | Miner, | 30 | M. | Draper, | Schuylkill, | Finger cut off by a fall of coal. |
| | 5, | Anthony Miller, | Miner, | 25 | S. | Maple Hill, | Schuylkill, | Burned severely by powder. A spark from his lamp fell into a cartridge of powder he had just filled. |
| | 21, | Frank Scanlan, | Driver, | 24 | S. | Honey Brook No. 4, | Schuylkill, | Leg fractured. He was crossing top of plane when the rope which was in motion slipped off a pulley, striking him. |
| | 28, | George McCleskie, | Oiler, | 23 | S. | Shenandoah City, | Schuylkill, | Arm fractured; while assisting to put wheel on breaker elevators, the lashing chain slipped and the wheel dropped on him. |
| | 29, | Richard Thomas, | Miner, | 40 | M. | Park No. 3 Slope, | Schuylkill, | Burned by powder; while filling a cartridge with powder a spark from his lamp fell into the cartridge. |
| May | 1, | Thomas Williams, | Foot man, | 17 | S. | Honey Brook No. 5, | Schuylkill, | Leg severely bruised; mule kicked him. |
| | 4, | Edward McClane, | Car runner, | 18 | S. | Tunnel Ridge, | Schuylkill, | Arm broken while throwing lever to catch car on cage. |
| | 7, | William Singley, | Stable boy, | 16 | S. | Park No. 3 Slope, | Schuylkill, | Arm broken by having been jammed between cars. |
| | 8, | Andrew Felix, | Miner, | 36 | M. | Oneida, | Schuylkill, | Leg fractured by a fall of coal. |
| | 19, | Thomas Rock, | Miner, | 44 | M. | Bear Ridge, | Schuylkill, | Arm and rib broken by a fall of "clod." |
| | 29, | William Koons, | Miner, | 31 | S. | Honey Brook No. 4, | Schuylkill, | Leg fractured; while loading a car at breaker he slipped and fell, striking against the breaker timbers. |
| June | 2, | Matt Makellavage, | Miner, | 39 | M. | Ellangowan, | Schuylkill, | Face and hands slightly burned by gas. He went up to his place of work, taking a naked lamp on his head and the safety lamp in his hand. |
| | 4, | Frank Schmicker, | Blacksmith, | 21 | S. | Indian Ridge, | Schuylkill, | Peritonitis, caused by a kick from a mule while shoeing it. |
| | 7, | Joseph Thomas, | Driver, | 40 | M. | Honey Brook No. 5, | Schuylkill, | Shoulder fractured; he fell in front of a truck while unhitching the mule. |
| | 20, | Albert Kudle, | Mason, | 40 | M. | North Mahanoy, | Schuylkill, | Leg fractured; he was raising boiler binders, when the rope broke and binder fell on him. |
| | 22, | John Suplinsky, | Laborer, | 40 | M. | Shenandoah City, | Schuylkill, | Compound fracture of leg below the knee by a fall of coal. |
| | 23, | August Righter, | Miner, | 30 | S. | Turkey Run, | Schuylkill, | Face and hands slightly burned by an explosion of gas. He went to face of breast with a naked lamp, leaving his safety lamp hanging on a prop. |
| July | 1, | Bernard Seculd, | Miner, | 38 | M. | Honey Brook No. 4, | Schuylkill, | Arm fractured by a blast which blew through from a neighboring breast. He did not retreat far enough when warned to do so. |

TABLE No. 5.—Continued.

| Date of accident. | | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| July | 2, | Peter Yanno, | Miner, | 40 | M. | Honey Brook No. 5, | Schuylkill, | Shot in the face, arms and breast; he thought the shot had missed fire and went back to re-light it, when it exploded. |
| | 8, | Henry Ernest, | Miner, | 34 | M. | Draper, | Schuylkill, | Three fingers blown off by an explosion of dynamite. |
| Aug. | 10, | John Miner, | Laborer, | 40 | M. | Park No. 2 Slope, | Schuylkill, | Leg fractured by a fall of coal. |
| | 10, | Godfrey Wheat, | Slate picker, | 14 | .... | Tunnel Ridge, | Schuylkill, | Arm fractured; he was running up and down the breaker steps at the dinner hour and fell, breaking his arm. |
| | 12, | Peter Zubrus, | Laborer, | 25 | S. | Gilberton, | Schuylkill, | Leg fractured; he was lowering down timber with a rope in the W. Holmes counter; the timber swung around, jamming his leg against a battery. |
| | 13, | John Barrett, | Starter, | 46 | M. | Boston Run, | Schuylkill, | Seriously injured on face, hands and side by an explosion of dynamite. He cut the squib too short. |
| | 17, | Peter Sharp, | Miner, | 50 | M. | Silver Brook, | Schuylkill, | Leg fractured by a fall of coal. |
| | 20, | Jos. Antronites, | Miner, | 50 | M. | Maple Hill, | Schuylkill, | Burned on face and hands by powder; he was filling a cartridge of powder with his lamp on his cap when a spark fell into the cartridge. |
| | 26, | Edward Foley, | Topman, | 22 | S. | Kohinoor, | Schuylkill, | Arm fractured; fell from a mule. |
| | 27, | Anth. Domekitus, | Miner, | 26 | S. | Vulcan, | Schuylkill, | Leg fractured by a fall of coal. |
| Sept. | 17, | John Nichols, | Miner, | 33 | S. | Kehley's Run, | Schuylkill, | Leg and arm severely injured; he had lit a squib to fire a blast and thinking it had missed fire he returned to re-light it, when the shot exploded. |
| | 17, | John Bordulis, | Miner, | 31 | S. | Tunnel Ridge, | Schuylkill, | Face, hands and leg burned by powder; while making up a shot of powder a spark from his lamp fell into the cartridge. |
| | 20, | Barney Suclandes, | Miner, | 22 | S. | Packer No. 3, | Schuylkill, | Face and hands slightly burned by an explosion of gas. He was warned by the fire boss not to enter the breast, but did not heed the warning. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sept. | 21, | Wm. Pallachufskie, .... | Miner, ..... | 40 | M. | Shenandoah City, ..... | Schuylkill, ..... | Back and head severely injured by a fall of coal. |
| | 23, | Wm. Bainbridge, ..... | Fire boss, ..... | 46 | M. | Packer No. 4, ..... | Schuylkill, ..... | Face and hands severely burned by an explosion of gas. He was displacing gas from a breast and the miners, contrary to orders, went up the next breast to it and ignited the traveling gas with their naked lamps. |
| | 23, | Peter Paff, ..... | Miner, ..... | 52 | M. | Shenandoah City, ..... | Schuylkill, ..... | Burned on face and hands by an explosion of gas. |
| | 27, | Wm. Mutcavage, ..... | Laborer, ..... | 28 | S. | Knickerbocker, ..... | Schuylkill, ..... | Leg severely lacerated by having been caught between cars. |
| | 28, | Mike Wargo, ..... | Car loader, ..... | 33 | M. | Boston Run, ..... | Schuylkill, ..... | Arm broken; fell from a box car. |
| Oct. | 6, | Emro Bulusko, ..... | Miner, ..... | 34 | M. | Honey Brook No. 5, ..... | Schuylkill, ..... | These men were slightly burned by an explosion of gas; they had fired a shot at face which blocked head of manway and shut off the ventilation, and they returned to face without their safety lamp. |
| | 6, | Albert Kunthrush, ..... | Miner, ..... | 28 | S. | Honey Brook No. 5, ..... | Schuylkill, ..... | |
| | 6, | Chas. Braskitus, ..... | Miner, ..... | 29 | S. | Ellangowan, ..... | Schuylkill, ..... | Fell down manway and was severely bruised. |
| | 9, | James Feely, ..... | Miner, ..... | 34 | S. | Oneida, ..... | Schuylkill, ..... | Severe scalp wound caused by a fall of coal. |
| | 11, | William Heney, ..... | Driver, ..... | 25 | M. | Silver Brook, ..... | Schuylkill, ..... | Arm broken by having been squeezed between cars. |
| | 12, | Thomas Heywood, ..... | Laborer, ..... | 28 | M. | Bear Ridge, ..... | Schuylkill, ..... | Two ribs broken and body very severely bruised by timber falling on it. |
| Nov. | 5, | Pat. Foley No. 1, ..... | Top man, ..... | 22 | S. | Indian Ridge, ..... | Schuylkill, ..... | Leg fractured; he was standing in slope when the rope swung around, striking him. |
| | 5, | Michael Martin, ..... | Laborer, ..... | 20 | S. | Gilberton, ..... | Schuylkill, ..... | Arm cut off; was riding on transfer car, jumped off and fell under the wheels. |
| | 9, | Paul Stafansick, ..... | Laborer, ..... | 20 | S. | Honey Brook No. 4, ..... | Schuylkill, ..... | Leg fractured by a fall of coal. |
| | 10, | Most Boble, ..... | Miner, ..... | 28 | S. | Maple Hill, ..... | Schuylkill, ..... | Leg fractured by a fall of coal. |
| | 11, | Mezart, McGallan, ..... | Laborer, ..... | 45 | S. | Packer No. 4, ..... | Schuylkill, ..... | Burned slightly by gas. |
| | 16, | Abe Blackwell, ..... | Laborer, ..... | 26 | S. | Gilberton, ..... | Schuylkill, ..... | Shoulder blade broken; fell from top or foundation wall of new shaft engine. |
| | 18, | Edward Gallagher, ..... | Miner, ..... | 28 | S. | Buck Mountain, ..... | Schuylkill, ..... | Back and legs severely bruised by a fall of coal. |
| | 19, | Geo. Loprofsky, ..... | Miner, ..... | 29 | S. | Packer No. 3, ..... | Schuylkill, ..... | Hands and face slightly burned by gas. |
| | 23, | Thomas Poff, ..... | Door boy, ..... | 15 | S. | Shenandoah City, ..... | Schuylkill, ..... | Arm cut off; this boy was in the habit of following the trips notwithstanding he had been warned not to do so. I cautioned him against doing this myself about two weeks before the accident occurred. He fell under the cars and his arm was terribly crushed below the elbow. |
| | 30, | Wm. Geehan, ..... | Outside laborer, .. | 19 | S. | North Mahanoy, ..... | Schuylkill, ..... | Head and body severely bruised and cut and leg fractured. He was replacing a rope pulley on surface dirt plane when a dumper struck him. The instructions are given by the foreman to keep off the plane while the cars are in motion. |
| Dec. | 1, | Michael Curdiff, ..... | Miner, ..... | 40 | M. | Packer No. 5 Slope, ..... | Schuylkill, ..... | Back and shoulders seriously injured by a fall of coal. |

TABLE No. 5.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| 7. | Mike Leonard, ..... | Loco. engineer, ... | 25 | S. | Buck Mountain, ..... | Schuylkill, ..... | While running along fourth lift, west gangway turnout, a set of timber was knocked out. The engineer had his hand on edge of locomotive and it was mashed so badly that it had to be amputated. |
| 7. | John Belarsheek, ..... | Laborer, ..... | 25 | M. | Park No. 2 Slope, ..... | Schuylkill, ..... | Leg fractured; he was running cars from No. 3 slope to bottom of breaker plane. He misplaced a switch and a car ran over him on the rock track. |
| 8. | Edward Humes, ..... | Miner, ..... | 53 | M. | Park No. 2 Slope, ..... | Schuylkill, ..... | Three ribs fractured by a fall of coal. |

# SEVENTH ANTHRACITE DISTRICT.

(NORTHUMBERLAND, COLUMBIA, SCHUYLKILL AND DAUPHIN COUNTIES.)

Shamokin, Pa., February 15, 1898.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor to present you herewith my report as Inspector of Coal Mines for the Seventh Anthracite Mining District for the year ending December 31, 1897, as required by section ten, article two, of the act June 2, 1891.

It contains tables and statistics showing location of collieries, total number of tons mined and shipped, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used and other information relative to anthracite coal mining.

The total production in tons of coal for the year 1897 was 5,108,948 tons, against 5,594,649 tons in 1896, a decrease of 485,701 tons. The total shipment was 4,377,761 tons for 1897, against 4,975,827 tons for 1896, a decrease of 598,066 tons.

I am especially pleased to note the decrease in loss of life; the number of fatal casualties was 46, a decrease of 30 from that of 1896.

The non-fatal casualties were 119, against 106 in 1896, an increase of 13. This increase was due to the carelessness of the workmen themselves, as nine are attributable to premature blasts and six to flying coal from shots, which demonstrates that the necessary precaution was not exercised.

## Examination of Applicants for Mine Foremen Certificates.

The annual examination of applicants for mine foremen certificates in the Seventh Anthracite District was held at Pottsville, Pa., June 18 and 19, 1897, and was presided over by the following board, viz: Edward Brennan, Mine Inspector, Shamokin; Andrew Robertson, coal operator, Shamokin; Robert Muir, miner, Mount Carmel, and Adam Bachman, miner, Ashland.

The following were recommended to receive mine foreman's certificates:

Thomas Holihan, Middleport.
Alfred White, Mount Carmel.
Richard Holland, Shamokin.
John Stewart, Ashland.
John W. Powell, Williamstown.

Respectfully submitted,

EDWARD BRENNAN,
Mine Inspector.

TABLE A—Comparative Statement of Fatal Casualties from Various Causes that Occurred During the Years 1895, 1896 and 1897.

| | 1895. | 1896. | 1897. |
|---|---|---|---|
| Falls and rushes of coal and slate, | 23 | 31 | 25 |
| Mine cars and machinery, | 14 | 19 | 7 |
| Explosion of blasting material, | 9 | 3 | 1 |
| Premature explosions, | ..... | ..... | 3 |
| Explosions of fire-damp, | 3 | 4 | 1 |
| Kicked by mules, | ..... | 1 | ..... |
| Falling down chutes, manways and breasts, | 2 | 4 | 3 |
| Boiler explosions, | ..... | 6 | ..... |
| Miscellaneous, | 8 | 8 | 6 |
| Total, | 59 | 76 | 46 |

TABLE B—Showing Number of Tons of Coal Mined by each Company, Number of Fatal Casualties and Number of Tons Mined for each Fatality.

| | Tons mined. | Fatalities. | Tons mined per fatality. |
|---|---|---|---|
| Philadelphia and Reading Coal and Iron Company, | 2,087,853 | 29 | 71,995 |
| Lehigh Valley Coal Company, | 92,047 | ..... | ..... |
| The Union Coal Company, | 775,093 | 4 | 193,773 |
| Mineral Railroad and Mining Company, | 387,960 | 3 | 129,320 |
| Summit Branch Railroad Company, | 354,413 | ..... | ..... |
| Lykens Valley Coal Company, | 308,429 | 3 | 102,803 |
| J. Langdon & Company, Incorporated, | 163,589 | 3 | 54,530 |
| Individual collieries, | 939,564 | 4 | 234,891 |
| Total, | 5,108,948 | 46 | ..... |

TABLE C—Showing the Comparisons of Non-Fatal Casualties for the Years 1895, 1896 and 1897.

| | 1895. | 1896. | 1897. |
|---|---|---|---|
| Falls of coal and roof, | 40 | 34 | 36 |
| Explosions of fire damp, | 16 | 19 | 11 |
| Mine cars and machinery, | 36 | 31 | 19 |
| Explosions of blasting material, | 10 | 3 | 7 |
| Premature explosions, | ..... | ..... | 9 |
| Kicked by mules, | 2 | 1 | 4 |
| Falling down chutes and manways, | 1 | 2 | 7 |
| By coal flying from shots, | ..... | ..... | 6 |
| Miscellaneous, | 9 | 16 | 20 |
| Total, | 114 | 106 | 119 |

TABLE D—Showing Comparison of the Quantity of Coal Shipped, the Estimated Quantity used and sold at Collieries, and the Total Production for the Years 1895, 1896 and 1897.

| | 1895. | 1896. | 1897. |
|---|---|---|---|
| Quantity of coal shipped, | 5,715,620 | 4,975,827 | 4,377,761 |
| Quantity of coal used and sold at collieries, | 468,922 | 618,822 | 731,187 |
| Total, | 6,184,542 | 5,594,649 | 5,108,948 |

TABLE E—Showing General Comparisons between the Years 1895, 1896 and 1897.

| | 1895. | 1896. | 1897. |
|---|---|---|---|
| Number of persons employed, | 1,399 | 20,195 | 19,670 |
| Number of tons of coal mined per life lost, | 104,823 | 73,614 | 111,064 |
| Ratio of employes per life lost, | 329 | 266 | 428 |
| Number of tons of coal mined per person injured, | 54,250 | 52,780 | 42,932 |
| Tons of coal mined per employe, | 319 | 277 | 259 |

TABLE F—Showing the Number of Persons Employed by the Several Companies and the Number of Fatalities.

| | Number of fatalities. | Number of employes. |
|---|---|---|
| Philadelphia and Reading Coal and Iron Company, | 29 | 7,356 |
| Lehigh Valley Coal Company, | | 507 |
| The Union Coal Company, | 4 | 3,564 |
| Mineral Railroad and Mining Company, | 3 | 1,751 |
| Summit Branch Railroad Company, | | 1,034 |
| Lykens Valley Coal Company, | 3 | 1 068 |
| J. Langdon & Company, Incorporated, | 3 | 531 |
| Individual collieries, | 4 | 3,889 |
| Total, | 46 | 19,670 |

## Method of Mining and Robbing Pillars at the Richards Colliery, The Union Coal Company, Mount Carmel, Pa.

Appended to my report is a sketch showing the method of mining and robbing pillars at the Richards Colliery, operated by The Union Coal Company, at Mount Carmel, Pa., under the supervision of Mr. John L. Williams, Superintendent.

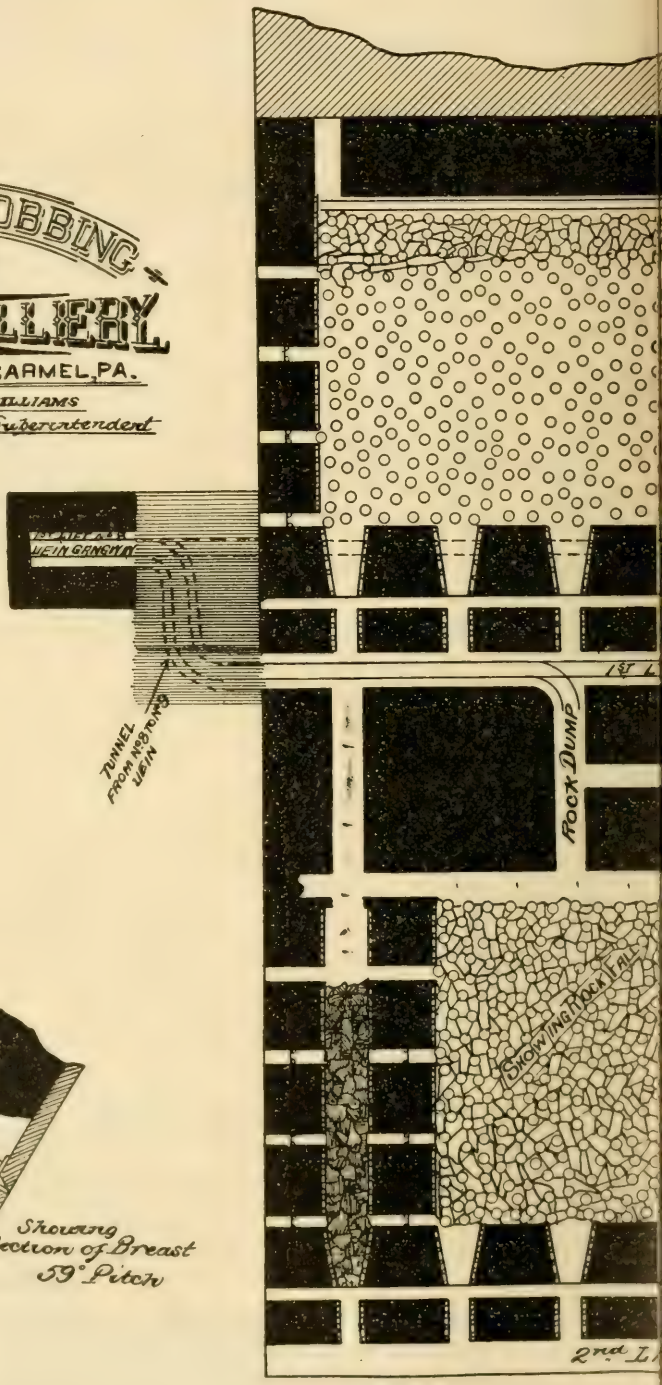
This colliery is the largest producer in the district and has a capacity of 2,300 tons per day. The seams of coal mined at this colliery are small and lean, averaging from two feet to four feet in thickness,

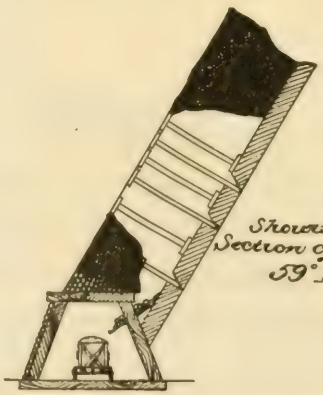
The METHOD of

# MINING AND ROBBING PILLARS at the RICHARDS COLLIERY

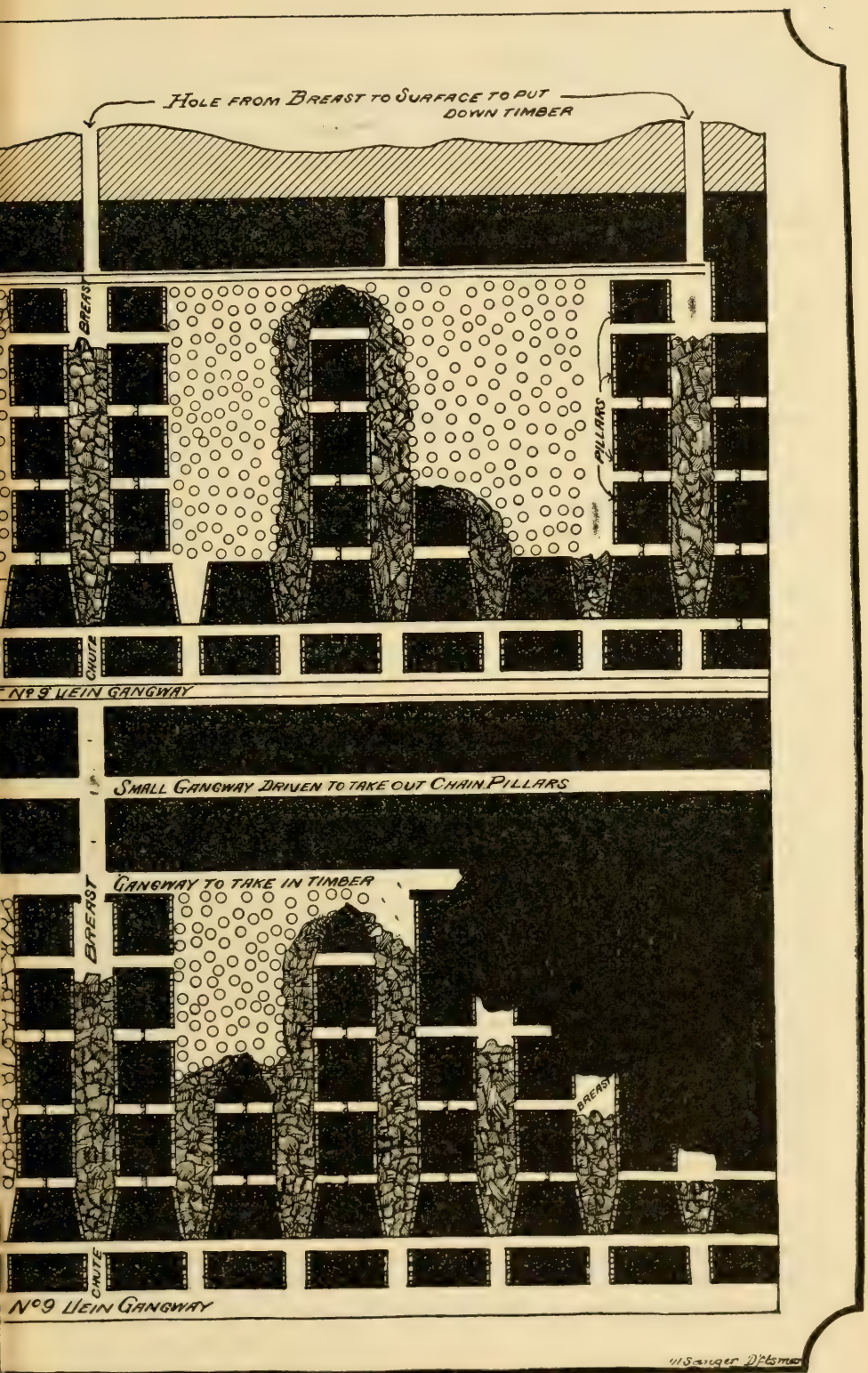
UNION COAL CO ~ MT CARMEL, PA.

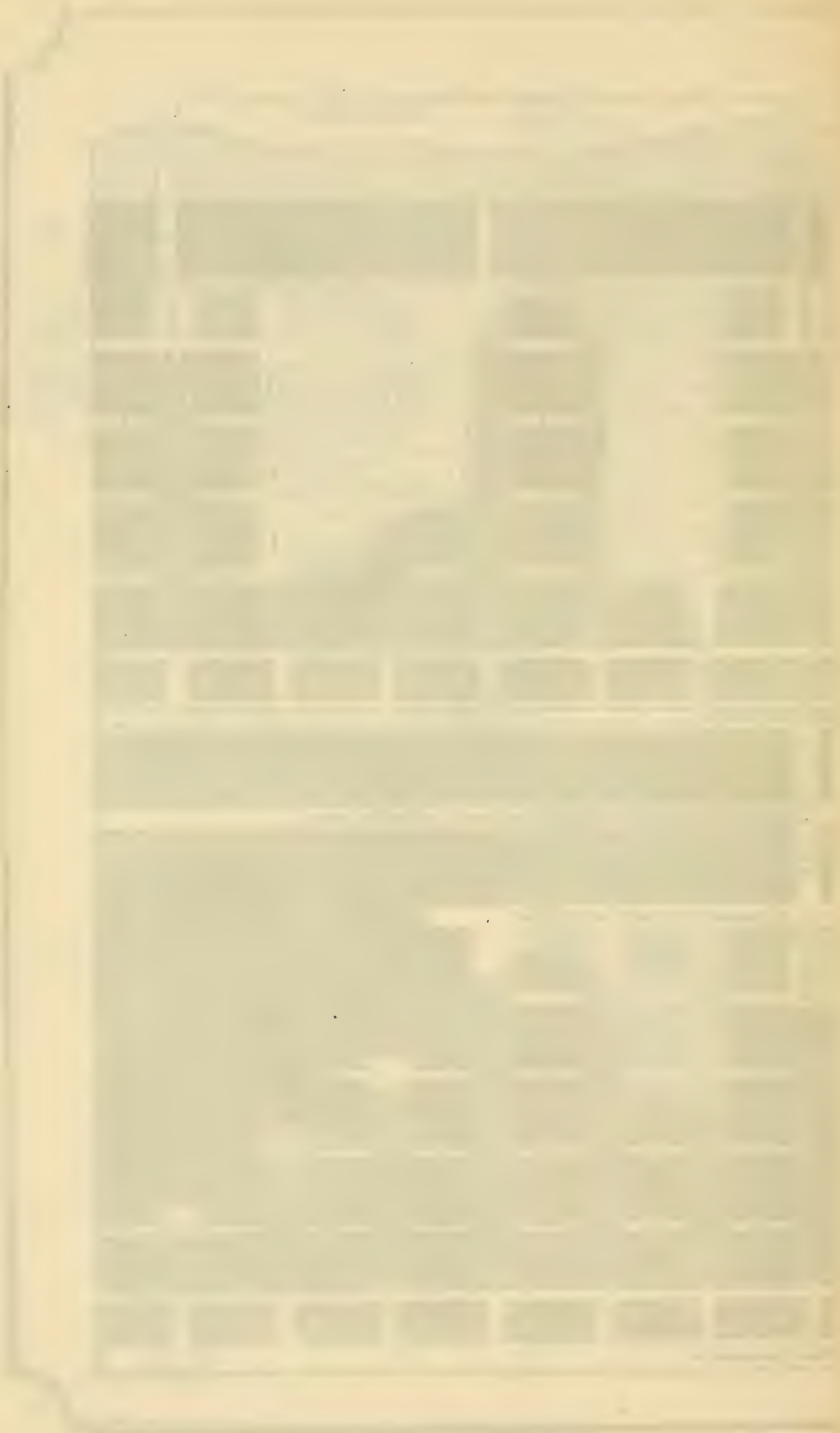
JOHN L. WILLIAMS
Superintendent



Showing Section of Breast 59° Pitch


Hole from Breast to Surface to put down timber
Breast
Pillars
Chute
No 9 Vein Gangway
Small Gangway Driven to take out Chain Pillars
Gangway to take in timber
Breast
Breast
Chute
No 9 Vein Gangway



and standing on steep angles from 40 degrees up to 80 degrees. Mr. Williams discovered, by experience, that unless some new method of robbing the pillars in these small seams on such steep angles could be successfully adopted, that the life of this model plant would be of short duration. In order to prolong the life of this colliery as long as possible, which would be a benefit to the land owners, the operators and the working men as well as the community at large, Mr. Williams was determined to try a new method of robbing the pillars in small seams on the heavy dips so that 90 per cent. of all the coal in place could be taken out. His method is thoroughly explained on the accompanying sketch. The pillars in the upper seam are taken out first; the breasts in that seam are driven up within a reasonable distance from the surface, enough coal being left against the surface to keep it up until the final robbing; after the top rock has subsided below this point, the balance of this coal is buggied to one of the breasts which is used as a counter chute. Whenever practicable, every fourth or fifth breast is driven through to the surface; this opening is used by the men, through which they bring down timber for propping the breast, also the place where the pillar stood. As soon as everything is ready to commence on the pillars, the loose coal in the breasts on either side of the pillar is withdrawn, leaving a space of six or eight yards in length at the top end of the breast. Props are brought down from the surface, through the openings already mentioned, and put up in the open space in the two breasts, one on either side of the pillar to be taken out. These props are put up five or six feet apart, as circumstances require. If there is a bad, loose bottom under the seam, every other prop is extended through this clod; the other prop is put up on top of the clod. By so doing, the bad bottom is prevented from slipping and mixing with the coal. This is very important where small, lean seams are mined on steep angles, as everything which is loose in the breasts has to be loaded out and sent to the breaker, making it very troublesome and expensive to prepare the coal. As soon as the space in the two breasts, which I have just mentioned, is propped and secured, we are ready to start on the pillar. The miner puts in a light charge of powder and fires a blast in the pillar close to the face of the breast which he has secured with props. This blast loosens the coal in the pillar so that the miner can release a large quantity of it with his drill. The pillar coal worked in this way produces 25 per cent. more prepared sizes than the breast coal, which is quite an increase to the interest of the land owners as well as the coal operator. As soon as this section of the pillar is taken out and the space where it stood is properly propped, we are now ready to proceed with another section. The coal in the two breasts is withdrawn again for six or eight yards; the breasts are propped and secured; then we start on

the other section of the pillar and proceed in this manner until a point is reached twenty yards above the monkey, or about twenty-eight or thirty yards above the gangway; at this point, props a little stronger are put about four feet apart across the two breasts which are covered with round poles forming a battery. In due time, if the top does not squeeze and fall after the first pillar is taken out in the manner already described, the second pillar is taken out. If the top does not fall, then the third and even the fourth pillar is taken out, if necessary, leaving a space of 200x300 feet, more or less, according to circumstances. When the top in these openings does subside, owing to the number of props used, it comes down so easily that hardly any concussion is felt in the gangway below. When the top rock has fallen and filled the open space, a small buggy road is laid at the back of the fall to take the balance of the coal which was left to secure the surface. This coal has to be buggied and dumped into one of the breasts used for that purpose; all the other coal runs by gravity to the main gangway below, where it is loaded into the mine car. Where the pillars between the first and second lifts are taken out as shown on sketch, the rock taken from the gangways and breasts in the upper lifts is dumped into these openings, forming a pillar of rock instead of the coal, which has been taken out. The props and timber for securing the breasts driven up from the second lift are taken down to the first lift gangway and from there distributed and taken down as required below. The props to secure the breasts for taking out the pillars in the third lift are taken down to the second lift and for each additional lift the props would be brought down to the gangway in the lift above until the basin would be reached. Although this method of mining and robbing pillars has been in practical use at this colliery during the last two years, not one fatal or serious accident has occured in the sections which have been robbed. I am convinced that thousands of tons of coal have been taken out which would have surely been lost, if the old system of skipping and robbing pillars had been adopted. I have examined the inside workings at this colliery and watched the progress of this work very closely during the last two years, and I must say that I honestly believe that 90 per cent. of the coal has been taken out of all the places robbed and finished. In looking over former mine Inspectors' reports, I came across the one issued for 1887, in which Mr. William Stein, mine Inspector, of Shenandoah, Pa., for the Sixth District, makes a favorable mention of Mr. John L. Williams' plan for the filling of large openings in the Kohinoor Colliery, at Shenandoah, with culm, in order to save property and take out more coal in the robbing of the Mammoth seam, where it is thick. Since then, the plan has been adopted and works successfully all through the anthracite region. In my report for the year 1897, ten years after the time Mr. Stein wrote his report, I have no hesitation in saying that Mr. Williams may well feel proud of another undertak-

ing which he originated, viz: the taking out with safety of 90 per cent. of the coal in the small seams on heavy dips. It is calculated that 1,000,000 tons more coal can be taken out of the Richards Colliery alone by adopting this method, which would have otherwise been lost. My object in giving a descriptive detail of the method used in mining and robbing pillars at this colliery is that it may be instrumental in putting it into the minds of others mining coal and placed in like circumstances to adopt this system wherever practicable.

TABLE No. 1—Showing Location, etc., of Collieries in the Seventh Anthracite District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Burnside, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Bear Valley, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Buck Ridge, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Henry Clay, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Big Mountain, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Sterling, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| North Franklin, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Alaska, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Reliance, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Locust Spring, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Locust Gap, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Monitor, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Merriam, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Potts, | Philadelphia & Reading Coal & Iron Co., .. | Columbia, | John Veith, | Pottsville. |
| Keystone Jig, | Philadelphia & Reading Coal & Iron Co., .. | Columbia, | John Veith, | Pottsville. |
| East, | Philadelphia & Reading Coal & Iron Co., .. | Schuylkill, | John Veith, | Pottsville. |
| North Ashland, | Philadelphia & Reading Coal & Iron Co., .. | Columbia, | John Veith, | Pottsville. |
| Preston No. 3, | Philadelphia & Reading Coal & Iron Co., .. | Schuylkill, | John Veith, | Pottsville. |
| George Fales washery, | Philadelphia & Reading Coal & Iron Co., .. | Northumberland, | John Veith, | Pottsville. |
| Pennsylvania, | The Union Coal Company, | Northumberland, | John L. Williams, | Shamokin. |
| Richards, | The Union Coal Company, | Northumberland, | John L. Williams, | Shamokin. |
| Hickory Swamp, | The Union Coal Company, | Northumberland, | John L. Williams, | Shamokin. |
| Hickory Ridge, | The Union Coal Company, | Northumberland, | John L. Williams, | Shamokin. |
| Cameron, | Mineral Railroad and Mining Company, .. | Northumberland, | Francis H. Kohlbraker, | Shamokin. |
| Luke Fidler, | Mineral Railroad and Mining Company, .. | Northumberland, | Francis H. Kohlbraker, | Shamokin. |
| Colbert, | Shipman Coal Company, | Northumberland, | Robert A. Quinn, | Shamokin. |
| Mount Carmel, | Thomas M. Righter & Co., | Northumberland, | Thomas M. Righter, | Mount Carmel. |
| Neilson, | J. Langdon & Co., Incorporated, | Northumberland, | Harry S. Gay, | Shamokin. |
| Excelsior, | Excelsior Coal Company, | Northumberland, | Andrew Robertson, | Shamokin. |
| Corbin, | Excelsior Coal Company, | Northumberland, | Andrew Robertson, | Shamokin. |
| Enterprise, | Enterprise Coal Company, | Northumberland, | W. L. Connell, | Scranton. |
| Girard, | Girard Coal Company, | Northumberland, | Alex. B. Law, | Mount Carmel. |
| Natalie, | Natalie Anthracite Coal Company, | Northumberland, | W. A. Kitts, Jr., | Natalie. |
| Williamstown, | Summit Branch Railroad Company, | Dauphin, | T. M. Williams, | Lykens. |
| Short Mountain, | Lykens Valley Coal Company, | Dauphin, | T. M. Williams, | Lykens. |
| Logan, | Lehigh Valley Coal Company, | Columbia, | W. A. Lathrop, | Wilkes-Barre. |
| Centralia, | Lehigh Valley Coal Company, | Columbia, | W. A. Lathrop, | Wilkes-Barre. |
| Big Mine Run, | Lehigh Valley Coal Company, | Schuylkill, | W. A. Lathrop, | Wilkes-Barre. |
| Locust Run, | Lehigh Valley Coal Company, | Columbia, | W. A. Lathrop, | Wilkes-Barre. |
| Continental,* | Lehigh Valley Coal Company, | Columbia, | W. A. Lathrop, | Wilkes-Barre. |
| Bellmore,* | Lehigh Valley Coal Company, | Columbia, | W. A. Lathrop, | Wilkes-Barre. |
| Morris Ridge,* | Lehigh Valley Coal Company, | Columbia, | W. A. Lathrop, | Wilkes-Barre. |
| Reno,* | Lehigh Valley Coal Company, | Columbia, | W. A. Lathrop, | Wilkes-Barre. |
| Montana,* | Lehigh Valley Coal Company, | Columbia, | W. A. Lathrop, | Wilkes-Barre. |
| Midvalley, | Lehigh Valley Coal Company, | Columbia, | T. E. Snyder, | Wilburton. |

*Abandoned.

TABLE NO. 2.—Gives the Total Number of Tons of Coal Mined in each Colliery, Number of Days Worked, Number of Employes, Number of Persons Killed and Injured, Number of Kegs of Powder used, etc., in the Seventh Anthracite District for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments, in tons, of coal. | Number days worked. | Number persons employed. | Number fatal accidents. | Number of non-fatal accidents. | Number kegs powder used. | Number pounds dynamite used. | Number steam boilers. | Number horses and mules. | Number mine locomotives. | Electric motor. | Compressed air motor. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Burnside, | Northumberland, | 205,440 | 9,340 | 758 | 195,342 | 153 | 705 | 7 | 5 | 4,107 | 13,778 | 8 | 83 | 1 | ..... | ..... |
| Bear Valley, | Northumberland, | 148,929 | 8,714 | 386 | 139,829 | 150 | 473 | 1 | 2 | 3,934 | 2,885 | 19 | 56 | 1 | ..... | ..... |
| Buck Ridge, | Northumberland, | 52,940 | 12,919 | 187 | 39,834 | 151 | 173 | ..... | 1 | 702 | 1,854 | 24 | 17 | ..... | ..... | ..... |
| Henry Clay, | Northumberland, | | | | | | 647 | 1 | 1 | 2,159 | 13,927 | 10 | ..... | 3 | ..... | ..... |
| Big Mountain, | Northumberland, | 379,384 | 38,877 | 27,615 | 312,892 | 159 | 391 | 5 | 2 | 4,096 | 9,049 | 28 | 187 | 1 | ..... | ..... |
| Sterling, | Northumberland, | | | | | | 360 | 1 | 4 | 2,694 | 5,048 | 20 | ..... | ..... | ..... | ..... |
| North Franklin, | Northumberland, | 125,418 | 9,786 | 4,292 | 111,340 | 154 | 487 | 1 | 1 | 1,988 | 7,942 | 25 | 53 | ..... | ..... | ..... |
| Alaska, | Northumberland, | 185,477 | 12,835 | 156 | 172,486 | 133 | 685 | ..... | 2 | 6,289 | 4,609 | 24 | 95 | ..... | ..... | 1 |
| Reliance, | Northumberland, | 123,691 | 18,619 | 9,408 | 95,664 | 133 | 494 | 2 | ..... | 4,222 | 3,409 | 26 | 52 | ..... | ..... | ..... |
| Locust Spring, | Northumberland, | 137,775 | 14,177 | ..... | 123,598 | 141 | 483 | 3 | 3 | 3,279 | 6,048 | 24 | 64 | 1 | ..... | ..... |
| Locust Gap, | Northumberland, | 162,241 | 22,572 | 1,965 | 147,754 | 139 | 543 | 2 | 1 | 2,548 | 3,062 | 6 | 46 | 1 | ..... | ..... |
| Monitor, | Northumberland, | 38,437 | 7,042 | 173 | 31,220 | 132 | 165 | 1 | 2 | 540 | 2,029 | 16 | 23 | ..... | ..... | ..... |
| Merriam, | Northumberland, | 29,691 | 16,755 | 705 | 12,231 | 24 | 22 | 1 | ..... | 251 | 3,150 | 8 | 1 | ..... | ..... | ..... |
| Potts, | Columbia, | 139,309 | 16,658 | 2,935 | 119,716 | 138 | 500 | 1 | 1 | 614 | 40,286 | 25 | 45 | ..... | ..... | ..... |
| Keystone Jig, | Columbia, | 23,151 | 2,540 | 22 | 20,589 | 61 | 2 | ..... | ..... | ..... | ..... | 13 | 5 | ..... | ..... | ..... |
| East, | Schuylkill, | 114,666 | 29,190 | ..... | 85,410 | 143 | 488 | ..... | ..... | 462 | 24,845 | 46 | 49 | 1 | ..... | ..... |
| North Ashland, | Columbia, | 128,998 | 24,214 | 5,592 | 99,192 | 141 | 575 | 2 | 3 | 1,616 | 3,318 | 40 | 37 | ..... | ..... | ..... |
| Preston No. 3, | Schuylkill, | 90,508 | 18,525 | ..... | 71,980 | 122 | 363 | 1 | 2 | 100 | 16,372 | 21 | 38 | ..... | ..... | ..... |
| George Fales washery, | Northumberland, | 1,816 | ..... | ..... | 1,816 | 29 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Pennsylvania, | Northumberland, | 259,598 | ..... | ..... | 232,026 | 175 | 947 | 2 | 14 | 10,175 | ..... | 20 | 89 | 2 | ..... | ..... |
| Richards, | Northumberland, | 289,737 | ..... | ..... | 265,271 | 129 | 1,437 | 1 | 8 | 9,780 | ..... | 14 | 93 | 1 | ..... | ..... |
| Hickory Ridge, | Northumberland, | 125,277 | ..... | ..... | 117,576 | 157 | 535 | ..... | 7 | 3,115 | ..... | 19 | 51 | 2 | ..... | ..... |
| Hickory Swamp, | Northumberland, | 90,481 | ..... | ..... | 84,873 | 137 | 625 | 1 | 5 | 2,085 | ..... | 12 | 46 | ..... | ..... | ..... |
| Cameron, | Northumberland, | 330,987 | ..... | ..... | 287,051 | 197 | 1,433 | 3 | 15 | 11,071 | 24,033 | 29 | 128 | 1 | ..... | ..... |
| Luke Fidler, | Northumberland, | 76,973 | ..... | ..... | 32,999 | 234 | 318 | ..... | 4 | 1,583 | 17,142 | 18 | 31 | 3 | ..... | ..... |
| Colbert, | Northumberland, | 72,540 | ..... | ..... | 68,940 | 195 | 311 | ..... | 2 | 2,106 | 1,800 | 11 | 29 | ..... | ..... | ..... |
| Mount Carmel, | Northumberland, | 132,581 | ..... | ..... | 131,589 | 173 | 381 | 1 | 4 | 2,682 | 16,600 | 33 | 36 | 1 | ..... | ..... |
| Neilson, | Northumberland, | 163,789 | ..... | ..... | 138,589 | 179 | 531 | 3 | 8 | 1,685 | 24,800 | 19 | 56 | ..... | ..... | ..... |

TABLE NO. 2.—Continued.

| Names of Collieries. | Location. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of hors s and mules. | Number of mine locomotives. | Electric motors. | Compressed air motor. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Excelsior, | Northumberland, | 156,760 | | | 141,143 | 178 | 405 | 2 | | 3,567 | | 22 | 55 | 1 | | |
| Corbin, | Northumberland, | 73,000 | | | 61,667 | 200 | 222 | | | 3,587 | | 11 | 19 | | | |
| Enterprise, | Northumberland, | 173,210 | | | 156,650 | 151 | 498 | | 3 | 5,170 | | 28 | 46 | 1 | 1 | |
| Girard, | Northumberland, | 82,367 | | | 78,867 | 187 | 340 | 1 | 5 | 1,777 | 8,639 | 2 | 22 | | | |
| Natalie, | Northumberland, | 71,830 | | | 67,939 | 51 | 962 | | 2 | 2,040 | 3 0 | 26 | 82 | 4 | | |
| Short Mountain, | Dauphin, | 308,429 | | | 250,428 | 261 | 1,038 | 3 | 2 | 3,157 | | 67 | 151 | 3 | 2 | |
| Williamstown, | Dauphin, | 354,413 | | | 248,234 | 250 | 1,034 | | 4 | 3,550 | | 89 | 125 | 5 | | |
| Logan, | Columbia, | | | | | | 28 | | | | | 4 | 12 | 1 | | |
| Centralia, | Columbia, | 12,809 | | | | | 252 | | | 337 | 3,749 | 7 | 39 | 1 | | |
| Big Mine Run, | Schuylkill, | 79,238 | | | 66,429 | 158 | 187 | | | 270 | 37 | 1 | 30 | | | |
| Locust Run, | Columbia, | | | | | | 14 | | | | | 16 | | | | |
| Continental,* | Columbia, | | | | | | 2 | | 1 | | | | | | | |
| Bellmore,* | Columbia | | | | | | 24 | | | | | | | | | |
| Morris Ridge,* | Columbia, | | | | | | | | | | | | | | | |
| Reno,* | Columbia, | | | | | | | | | | | | | | | |
| Montano,* | Columbia, | | | | | | | | | | | | | | | |
| Midvalley, | Columbia, | 177,276 | | | 166,597 | 139 | 780 | | 5 | 4,879 | | 11 | 47 | 2 | | |
| Total, | | 5,108,948 | 262,766 | 54,194 | 4,377,761 | 5,254 | 19,670 | 46 | 119 | 113,142 | 258,361 | 813 | 2,038 | 37 | 3 | 1 |

*Abandoned.

TABLE No. 3.—Showing the Number of each Class of Employes at each Colliery in the Seventh Anthracite District, during the Year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Burnside, | 2 | 3 | 227 | 106 | 27 | 16 | 79 | 460 | 1 | 9 | 22 | 95 | 116 | 2 | 245 | 705 |
| Bear Valley, | 1 | 2 | 173 | 19 | 17 | 8 | 73 | 293 | 1 | 5 | 13 | 92 | 68 | 1 | 180 | 473 |
| Buck Ridge, | 1 | 1 | 57 | 4 | 4 | 1 | 21 | 89 | 1 | 3 | 18 | 36 | 25 | 1 | 84 | 173 |
| Henry Clay, | 1 | 2 | 92 | 38 | 17 | 3 | 71 | 224 | 2 | 13 | 23 | 248 | 134 | 3 | 423 | 647 |
| Big Mountain, | 2 | 3 | 155 | 65 | 28 | 4 | 64 | 321 | 1 | 2 | 16 | ..... | 49 | 2 | 70 | 391 |
| Sterling, | 1 | 4 | 138 | 44 | 19 | 7 | 92 | 305 | 1 | 3 | 17 | ..... | 33 | 1 | 55 | 360 |
| North Franklin, | 1 | 2 | 74 | 35 | 14 | 2 | 74 | 202 | 1 | 9 | 16 | 75 | 183 | 1 | 285 | 487 |
| Alaska, | 2 | 4 | 290 | 42 | 44 | 17 | 78 | 477 | 1 | 7 | 20 | 110 | 68 | 2 | 208 | 685 |
| Reliance, | 2 | 3 | 167 | 25 | 22 | 10 | 52 | 281 | 1 | 6 | 21 | 110 | 73 | 2 | 213 | 494 |
| Locust Spring, | 1 | 3 | 146 | 14 | 14 | 3 | 117 | 298 | 2 | 6 | 21 | 98 | 56 | 2 | 185 | 483 |
| Locust Gap, | 1 | 4 | 193 | 22 | 23 | 8 | 104 | 355 | 1 | 7 | 18 | 99 | 61 | 2 | 188 | 543 |
| Monitor, | 1 | 1 | 45 | 14 | 6 | 1 | 34 | 102 | 1 | 3 | 4 | 30 | 24 | 1 | 63 | 165 |
| Merriam, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 10 | ..... | 11 | ..... | 22 | 22 |
| Potts, | 2 | 7 | 101 | 86 | 14 | 19 | 111 | 290 | 1 | 5 | 20 | 87 | 96 | 1 | 210 | 500 |
| Keystone Jig, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 1 | ..... | 2 | 2 |
| Bast, | 2 | 7 | 68 | 38 | 19 | 20 | 148 | 302 | 1 | 6 | 24 | 93 | 60 | 2 | 186 | 488 |
| North Ashland, | 1 | 2 | 61 | 7 | 9 | 5 | 76 | 161 | 1 | 3 | 23 | 135 | 51 | 1 | 214 | 375 |
| Preston No. 3, | 1 | 5 | 45 | 12 | 14 | 14 | 116 | 207 | 1 | 5 | 21 | 78 | 50 | 1 | 156 | 363 |
| George Fales washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Pennsylvania, | 7 | ..... | 335 | 130 | 47 | 16 | 160 | 695 | 1 | 8 | 35 | 85 | 120 | 3 | 252 | 947 |
| Richards, | 2 | ..... | 509 | 121 | 34 | 15 | 232 | 913 | 1 | 9 | 15 | 226 | 271 | 2 | 524 | 1,437 |
| Hickory Ridge, | 4 | ..... | 160 | 62 | 12 | 2 | 119 | 359 | 1 | 8 | 18 | 92 | 75 | 2 | 196 | 555 |
| Hickory Swamp, | 3 | ..... | 194 | 102 | 28 | 16 | 120 | 463 | 1 | 6 | 10 | 56 | 87 | 2 | 162 | 625 |
| Cameron, | 7 | ..... | 483 | 181 | 66 | 29 | 305 | 1,071 | 1 | 14 | 28 | 172 | 144 | 3 | 362 | 1,433 |
| Luke Fidler, | 6 | ..... | 48 | 29 | 11 | ..... | 96 | 190 | 1 | 18 | 28 | 7 | 71 | 3 | 128 | 318 |
| Colbert, | 1 | 3 | 80 | 20 | 15 | 2 | 80 | 201 | 1 | 4 | 2 | 66 | 25 | 2 | 100 | 301 |
| Mount Carmel, | 2 | 1 | 92 | 61 | 10 | 4 | 68 | 238 | 2 | 3 | 11 | 67 | 56 | 4 | 143 | 381 |
| Neilson, | 1 | 7 | 161 | 45 | 37 | 8 | 101 | 360 | 1 | 9 | 20 | 73 | 64 | 4 | 171 | 531 |

TABLE NO. 3.—Continued.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Excelsior, | 4 | ..... | 150 | 71 | 22 | 3 | 40 | 290 | 2 | 8 | 5 | 54 | 43 | 3 | 115 | 405 |
| Corbin, | 3 | ..... | 82 | 47 | 11 | ..... | 15 | 158 | 2 | 2 | 4 | 31 | 25 | ..... | 64 | 222 |
| Enterprise, | 2 | ..... | 197 | 74 | 31 | 6 | 41 | 351 | 1 | 9 | 20 | 74 | 41 | 2 | 147 | 498 |
| Girard, | 1 | 2 | 100 | 40 | 19 | 2 | 78 | 242 | 1 | 4 | 7 | 42 | 41 | 3 | 98 | 340 |
| Natalie, | 3 | ..... | 366 | 182 | 42 | 10 | 35 | 638 | 1 | 15 | 15 | 150 | 140 | 3 | 324 | 962 |
| Williamstown, | 5 | ..... | 340 | 99 | 53 | 5 | 128 | 630 | 2 | 16 | 54 | 128 | 201 | 3 | 404 | 1,034 |
| Short Mountain, | 5 | ..... | 278 | 213 | 101 | 22 | 100 | 719 | 2 | 20 | 30 | 135 | 129 | 3 | 319 | 1,038 |
| Logan, | 1 | ..... | ..... | ..... | ..... | ..... | 12 | 13 | 1 | 1 | 3 | ..... | 10 | ..... | 15 | 28 |
| Centralia, | 1 | ..... | 15 | 8 | 6 | ..... | 25 | 55 | 1 | 10 | 18 | ..... | 162 | 6 | 197 | 252 |
| Big Mine Run, | 1 | ..... | 8 | 33 | 7 | ..... | ..... | 49 | 1 | 5 | 2 | 54 | 72 | 4 | 138 | 187 |
| Locust Run, | .... | ..... | ..... | ..... | ..... | ..... | 4 | 4 | 1 | ..... | 5 | ..... | 4 | ..... | 10 | 14 |
| Continental,* | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 |
| Bellmore,* | 1 | ..... | ..... | ..... | ..... | ..... | 9 | 10 | ..... | ..... | 5 | ..... | 9 | ..... | 14 | 24 |
| Morris Ridge,* | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Reno,* | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Montano,* | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Midvalley, | 2 | ..... | 207 | 109 | 16 | 2 | 25 | 361 | 3 | 7 | 30 | 155 | 220 | 4 | 419 | 780 |
| Total, | 84 | 66 | 5,837 | 2,148 | 859 | 280 | 3,105 | 12,379 | 48 | 268 | 672 | 3,053 | 3,169 | 81 | 7,291 | 19,670 |

* Abandoned.

TABLE No. 4.—List of Fatal Accidents that Occurred in and about the Mines of the Seventh Anthracite District, for the Year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Number of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| 1896. | | | | | | | | |
| Nov. 18, | Joseph Kerschew, | Miner, | .... | .... | .... | Big Mountain, | Northumberland, | Body injured by fall of coal; died February 11, 1897. |
| 1897. | | | | | | | | |
| Jan. 8, | John urtsick, | Miner, | .... | .... | .... | Bear Valley, | Northumberland, | Body injured by fall of coal; died February 1. |
| 11, | Mike Travinski, | Miner, | 48 | M. | 3 | Monitor, | Northumberland, | Killed by fall of rock. |
| 15, | Harry Startzle, | Laborer, | 20 | S. | .... | Burnside, | Northumberland, | Killed by dumper running over body. |
| 20, | Thos. J. Williams, | Miner, | 35 | M. | 4 | Sterling, | Northumberland, | Killed by slipping down manway. |
| 26, | John Erb, | Miner, | 42 | M. | .... | Burnside, | Northumberland, | Killed by fall of slate. |
| 26, | Mike Doviditas, | Miner, | 38 | M. | 4 | Merriam, | Northumberland, | Killed by premature blast. |
| 28, | Samuel D. Samuels, | Miner, | 48 | M. | 5 | Short Mountain, | Dauphin, | Killed by a rush of coal. |
| 28, | Aaron A. Umholtz, | Miner, | 41 | M. | 4 | Short Mountain, | Dauphin, | Killed by a rush of coal. |
| Feb. 9, | Harry May, | Miner, | .... | M. | .... | Big Mountain, | Northumberland, | Killed by a premature explosion. |
| 10, | Joseph Delego, | Miner, | .... | .... | .... | Cameron, | Northumberland, | Killed by falling down a chute. |
| 1896. | | | | | | | | |
| Nov. 10, | Joel Derk, | Miner, | .... | .... | .... | North Franklin, | Northumberland, | Back injured by fall of coal; died March 10. |
| 1897. | | | | | | | | |
| Mar. 23, | Jeremiah Weikel, | Bottom man, | 35 | M. | 6 | Locust Spring, | Northumberland, | Killed by mine cars squeezing head. |
| Apr. 6, | Henry Smoke, | Laborer, | .... | .... | .... | Locust Spring, | Northumberland, | Fell and hurt back; died July 30. |
| 28, | Adam Smith, | Miner, | 40 | M. | .... | Neilson, | Northumberland, | Killed by a falling prop, crushing body. |
| May 17, | Charles Barrant, | Miner, | .... | .... | .... | Cameron, | Northumberland, | Killed by a premature blast. |
| June 12, | William Lewis, | Laborer, | 20 | S. | .... | Short Mountain, | Dauphin, | Killed by mine cars running over body. |
| 14, | Charles Francis, | Miner, | 41 | M. | 3 | Pennsylvania, | Northumberland, | Killed by fall of top slate. |
| 19, | John Pilas, | Miner, | .... | .... | .... | Mount Carmel, | Northumberland, | Killed by fall of top slate; died 24th. |
| July 6, | Hugh Hogan, | Driver, | 18 | S. | .... | Locust Gap, | Northumberland, | Killed by mine wagon, rope breaking. |
| 11, | Frank Jimaloski, | Miner, | .... | S. | .... | Neilson, | Northumberland, | Killed by fall of coal. |
| 12, | Patrick Campbell, | Miner, | .... | .... | .... | North Ashland, | Columbia, | Killed by fall of coal. |
| 15, | Enoch Rimeovis, | Laborer, | 40 | M. | 3 | Burnside, | Northumberland, | Killed by fall of rock. |
| 20, | Frank Sheridan, | Engineer, | 25 | M. | .... | Girard, | Northumberland, | Killed by explosion of fire damp. |
| 21, | Walter Antonavage, | Miner, | 35 | M. | .... | Richards, | Northumberland, | Killed by fall of top rock. |
| 24, | Andrew Walinski, | Miner, | 36 | M. | 4 | Burnside, | Northumberland, | Dropped dead while going up breast. |
| Aug. 13, | John Adellman, | Miner, | .... | M. | .... | Excelsior, | Northumberland, | Killed by fall of top slate. |
| 25, | Alexander Taranies, | Miner, | 35 | M. | 3 | Hickory Swamp, | Northumberland, | Killed by fall of top slate. |
| 26, | George Barcus, | Miner, | .... | .... | .... | Big Mountain, | Northumberland, | Killed by fall of top coal. |
| Sept. 2, | Matthias Klutz, | .... | .... | .... | .... | Henry Clay, | Northumberland, | Killed by fall of top coal. |

TABLE No. 4.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of children. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Sept. 4, | Mike Rozanick, | Miner, | | | | Burnside, | Northumberland, | Killed by fall of slate. |
| 9, | —— Straub, | | | | | Cameron, | Northumberland, | Killed by falling off breaker trestle. |
| 9, | Mike Rogaskie, | Miner, | 26 | M. | 1 | Pennsylvania, | Northumberland, | Killed by fall of top coal. |
| 9, | Nathan Weikel, | Miner, | 42 | M. | 7 | Locust Spring, | Northumberland, | Killed by fall of top coal. |
| 23, | Frank Rowe, | Miner, | | | | Reliance, | Northumberland, | Killed by explosion of keg of powder. |
| Oct. 12, | Panco Cisco, | | | M. | 2 | Excelsior, | Northumberland, | Killed by fall of top coal. |
| 19, | John Tracey, | | | | | Locust Gap, | Northumberland, | Killed by fall of top coal. |
| 16, | Matt Ward, | | | | | Reliance, | Northumberland, | Killed by fly-wheel bursting. |
| 20, | Patrick Purcell, | | 26 | S. | | Burnside, | Northumberland, | Killed by prop falling on body. |
| 23, | Andrew Windrue, | Miner, | 30 | M. | 2 | Burnside, | Northumberland, | Killed by falling through vein; crushed. |
| Nov. 4, | Frank Shamansky, | Miner, | | M. | | Neilson, | Northumberland, | Killed by fall of rock. |
| 4, | William Hart, | Laborer, | | S. | | Preston No. 3, | Schuylkill, | Killed by falling in rolls. |
| 15, | Samuel Adams, | Miner, | | | | North Ashland, | Columbia, | Killed by fall of coal. |
| 16, | Stany Domeleskie, | | | | | Big Mountain, | Northumberland, | Killed by fall of rock. |
| Dec. 11, | Alfred Peters, | Laborer, | 23 | S. | | Potts, | Schuylkill, | Squeezed between car and collar. |
| 18, | Curtis Harris, | Miner, | | | | Big Mountain, | Northumberland, | Killed by falling down manway. |

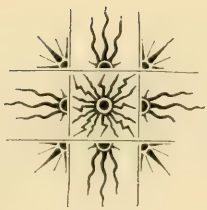
TABLE No. 5.—List of Non-Fatal Accidents that Occurred in and about the Mines of the Seventh Anthracite District, for the Year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Jan. 7, | Lincoln Snyder, | Miner, | .... | .... | Sterling, | Northumberland, .... | Foot and leg bruised by buggy. |
| 11, | Thos. E. Williams, | Pumpman, | 18 | S. | Richards, | Northumberland, .... | Eye hurt by flying piece of iron. |
| 12, | Wesley Orndorff, | ..... | .... | .... | Short Mountain, | Dauphin, | Body injured by falling in scraper line. |
| 13, | James Mullen, | ..... | .... | .... | Cameron, | Northumberland, .... | Ribs broken by falling down manway. |
| 13, | Michael Karpiak, | Miner, | .... | .... | Sterling, | Northumberland, .... | Head cut by premature blast. |
| 14, | Joseph Wasko, | Laborer, | 34 | M. | Pennsylvania, | Northumberland, .... | Slipped and fractured leg. |
| 14, | Adam Populsky, | Miner, | 27 | S. | Enterprise, | Northumberland, .... | Ribs broken by premature blast. |
| 17, | Simon Navakosky, | Miner, | 40 | M. | Hickory Swamp, | Northumberland, .... | Jaw broken by flying pieces of coal. |
| 18, | Edward Singleton, | Miner, | 45 | M. | Midvalley, | Columbia, | Ribs fractured by falling from collar. |
| 20, | Dominick Valentine, | Miner, | .... | .... | Locust Spring, | Northumberland, .... | Eye injured; struck by coal. |
| 21, | John Metzinger, | Miner, | .... | .... | Locust Spring, | Northumberland, .... | Eye injured; struck by coal. |
| 21, | John Hodoba, | Laborer, | 19 | S. | Pennsylvania, | Northumberland, .... | Burned by explosion of gas. |
| 26, | Isaac Fagley, | Driver, | 45 | M. | Pennsylvania, | Northumberland, .... | Leg bruised by mule falling on it. |
| 27, | Daniel Startzel, | ..... | 57 | .... | Hickory Ridge, | Northumberland, .... | Collar bone broken by being squeezed. |
| 28, | Joseph Sokolofsky, | ..... | .... | .... | Hickory Swamp, | Northumberland, .... | Head cut by fall of coal. |
| 30, | Mike Coranza, | ..... | .... | .... | Mount Carmel, | Northumberland, .... | Foot cut by axe while chopping. |
| Feb. 2, | Joseph Ramsky, | ..... | .... | .... | Enterprise, | Northumberland, .... | Arm broken by car being derailed. |
| 5, | Paul Martin, | ..... | .... | .... | Cameron, | Northumberland, .... | Leg broken by upheaval of breast. |
| 8, | Francis Rushon, | ..... | .... | .... | Cameron, | Northumberland, .... | Body hurt by falling down manway. |
| 11, | Anthony Wyshinsky, | ..... | .... | .... | Enterprise, | Northumberland, .... | Leg broken by fall of slate. |
| 12, | John Tote, | ..... | .... | .... | Natalie, | Northumberland, .... | Body hurt by fall of coal. |
| 18, | Wally Yocobowski, | ..... | .... | .... | Pennsylvania, | Northumberland, .... | Arm fractured by premature blast. |
| 19, | Charles Gracel, | ..... | .... | .... | Colbert, | Northumberland, .... | Back hurt by fall of coal. |
| 19, | Frank Shadow, | ..... | .... | .... | Hickory Swamp, | Northumberland, .... | Hip fractured by a fall of clod. |
| 19, | Mike Sesney, | ..... | .... | .... | Pennsylvania | Northumberland, .... | Foot mashed by mine wagon. |
| 20, | Robert Doughton, | ..... | .... | .... | Hickory Swamp, | Northumberland, .... | Leg broken by fall of top coal. |
| Mar. 2, | William Swank, | ..... | .... | .... | Midvalley, | Columbia, | Arm broken by falling from plank. |
| 16, | Evan Jones, | ..... | .... | .... | Cameron, | Northumberland, .... | Squeezed between mine cars. |
| 18, | William Powell, | ..... | .... | .... | Pennsylvania, | Northumberland, .... | Hurt by falling down breast. |
| 18, | Alexander Fairley, | ..... | .... | .... | Pennsylvania, | Northumberland, .... | Arm broken by flying coal. |
| Apr. 1, | Joseph Robosky, | ..... | .... | .... | Hickory Ridge, | Northumberland, .... | Leg broken by fall of coal. |
| 7, | Thomas Price, | ..... | .... | .... | Natalie, | Northumberland, .... | Head cut and back hurt by mine wagons. |
| 11, | John Lubkuski, | ..... | .... | .... | Neilson, | Northumberland, .... | Squeezed between chute and wagon. |
| 13, | John C. Williams, | ..... | .... | .... | Sterling, | Northumberland, .... | Hurt by fall of coal. |
| 13, | Joseph Kowitski, | ..... | .... | .... | Pennsylvania, | Northumberland, .... | Arm fractured; kicked by mule. |

TABLE No. 5.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| April 19. | John Podella, | | | | Girard, | Northumberland, | Head badly hurt by blast. |
| 21. | Mike Baran, | | | | Hickory Ridge, | Northumberland, | Hurt by fall of top coal. |
| 27. | John Childs, | | | | Neilson, | Northumberland, | Premature explosion of blast. |
| 29. | Frank Rasko, | | | | Pennsylvania, | Northumberland, | Hip and face hurt by fall of coal. |
| May 1. | Frank Phillip, | | | | Neilson, | Northumberland, | Hand mashed by dumpers. |
| 3. | George South, | | | | Bear Valley, | Northumberland, | Leg broken and body hurt by fall of coal. |
| 11. | Lewis Bergamo, | | | | Luke Fidler, | Northumberland, | Hands and arms hurt by discharge of dynamite. |
| 11. | Lewis Matulun, | | | | Luke Fidler, | Northumberland, | |
| 18. | Frank Schuck, | | | | Girard, | Northumberland, | Wrist and ribs broken by premature blast. |
| 24. | Peter Stonavage, | | | | Mount Carmel, | Northumberland, | Burned by explosion of gas. |
| 24. | Frank Kaminski, | | | | Mount Carmel, | Northumberland, | |
| June 1. | Jesse Weaver, | | | | Bear Valley, | Northumberland, | Ribs broken by fall of coal. |
| 1. | Edward Bowen, | | | | Midvalley, | Columbia, | Kicked by mule. |
| 2. | Harry Tiley, | | | | Williamstown, | Dauphin, | Head badly hurt; kicked by mule. |
| 2. | Harrison Watkins, | | | | Williamstown, | Dauphin, | Thumb cut by axe. |
| 4. | Thomas Welsh, | | | | Williamstown, | Dauphin, | Knee dislocated by prop falling on it. |
| 8. | Edward Roth, | | | | Luke Fidler, | Northumberland, | Feet and legs burned by hot dust from boilers. |
| 10. | Dennis Fitzpatrick, | | | | North Franklin, | Northumberland, | Leg broken by earth falling on it. |
| 10. | Philip Malebaum, | | | | Richards, | Northumberland, | Head hurt by blast. |
| 19. | John Pillas, | | | | Mount Carmel, | Northumberland, | Hurt by fall of top coal. |
| 26. | Joseph Colerio, | | | | Luke Fidler, | Northumberland, | Hurt by premature discharge of shot. |
| July 1. | August Balsam, | | | | Cameron, | Northumberland, | Badly scorched by explosion of gas. |
| 1. | Mart Seever, | | | | North Ashland, | Columbia, | Back hurt by plank slipping. |
| 12. | James Walker, | | | | Burnside, | Northumberland, | Hurt by buggy; chain having broken. |
| 14. | John Covely, | | | | Alaska, | Northumberland, | Arm broken by falling on railroad. |
| 15. | Michael Horn, | | | | North Ashland, | Columbia, | Arm hurt; fell in chute. |
| 20. | Charles Penman, | | | | Richards, | Northumberland, | Fell down chute; body injured. |
| 20. | John Borbins, | | | | Girard, | Northumberland, | Hands and face burned by explosion of gas. |
| 27. | Thomas Davis, | | | | Richards, | Northumberland, | Ankle fractured by fall of slate. |
| 28. | Mike Murdrie, | | | | Hickory Ridge, | Northumberland, | Injured by falling under engine. |
| Aug. 4. | E Chapelskie, | | | | Big Mountain, | Northumberland, | Head and hand hurt by fall of coal. |
| 5. | Peter Leecskie, | | | | Cameron, | Northumberland, | Hurt by fall of coal. |
| 19. | Jerry Buckley, | | | | Short Mountain, | Dauphin, | Leg broken by falling under wagons. |
| 24. | Harvey Warfield, | | | | Pennsylvania, | Northumberland, | Leg broken by fall of coal. |

| | | | | | |
|---|---|---|---|---|---|
| Sept. | 1, | James Dormer, | Continental, | Columbia, | Hurt by fall of top rock. |
| | 2, | Jacob Minkstone, | Burnside, | Northumberland, | Hurt by fall of top coal. |
| | 4, | Frank Shuslock, | Burnside, | Northumberland, | Leg and ribs broken by fall of slate. |
| | 7, | Martin Lampara, | Hickory Ridge, | Northumberland, | Thigh fractured by flying coal. |
| | 11, | Edward Conchas, | Richards, | Northumberland, | Face and hands burned by gas. |
| | 11, | Andrew Shoemaker, | Hickory Swamp, | Northumberland, | Arm caught between dumpers. |
| | 18, | Mike Bender, | Burnside, | Northumberland, | Legs broken by fall of rock. |
| | 18, | Jerry Reagan, | Burnside, | Northumberland, | Neck, head and arms cut by fall of coal. |
| | 20, | Joseph Hinckley, | North Ashland, | Columbia, | Toes mashed by fall of coal. |
| | 23, | John Hotrash, | Hickory Ridge, | Northumberland, | Caught between dumpers. |
| | 28, | Anthony Frank, | Colbert, | Northumberland, | Face and hands burned by powder. |
| Oct. | 7, | Albert Tilley, | Williamstown, | Dauphin, | Back hurt by fall of coal. |
| | 9, | Frank White, | Potts, | Schuylkill, | Leg broken by fall of rock. |
| | 9, | Mike Kellagher, | Richards, | Northumberland, | Leg crushed between mule and wagon. |
| | 11, | John Trimerae, | Preston No. 3, | Schuylkill, | Leg and nose broken; struck by coal. |
| | 12, | Webster Lott, | Cameron, | Northumberland, | Leg broken; caught between door frame and car. |
| | 13, | William Curran, | Cameron, | Northumberland, | Leg broken by collar falling on it. |
| | 15, | Frank Volniday, | Neilson, | Northumberland, | Arms broken by fall of rock. |
| | 15, | Joseph Yessick, | Neilson, | Northumberland, | Hand mashed by fall of rock. |
| | 20, | Henry Lorenz, | Sterling, | Northumberland, | Face and hands burned by exploding gas. |
| | 26, | Edward Maloney, | Cameron, | Northumberland, | Face and hands burned by exploding gas. |
| | 27, | Andrew Rejick, | Pennsylvania, | Northumberland, | Face and hands burned by exploding gas. |
| | 28, | Thomas Hestor, | Cameron, | Northumberland, | Fell and fractured leg. |
| | 30, | Peter Makiness, | Girard, | Northumberland, | Head hurt by fall of coal. |
| | 30, | Powell Graff, | Girard, | Northumberland, | Head hurt by fall of coal. |
| Nov. | 4, | Bryan Monaghan, | Preston No 3, | Schuylkill, | Leg broken; kicked by mule. |
| | 4, | Victor Boezinski, | Monitor, | Northumberland, | Fell down chute and rib broken. |
| | 9, | Ben. Warrent, | Monitor, | Northumberland, | Foot mashed by fall of rock. |
| | 11, | Andrew Petro, | Alaska, | Northumberland, | Burned by powder. |
| | 12, | Christy McGinn, | Locust Spring, | Northumberland, | Head cut and leg broken by fall of coal. |
| | 16, | John Garbut, | Buck Ridge, | Northumberland, | Arm broken, caught between chute and bar. |
| | 16, | Alexander Culick, | Cameron, | Northumberland, | Head and shoulders hurt by fall of coal. |
| | 18, | Julius Slashinsky, | Neilson, | Northumberland, | Arm broken. |
| | 24, | James Shaw, | Big Mountain, | Northumberland, | Hands injured by premature shot. |
| | 27, | Peter Metz, | Hickory Ridge, | Northumberland, | Injured by fall of top slate. |
| | 29, | Frank Richter, | Midvalley, | Columbia, | Knee squeezed between car dumpers. |
| Dec. | 2, | Bert McGinness, | Cameron, | Northumberland, | Coal rolled down slope, injuring body. |
| | 3, | Jacob Harris, | Cameron, | Northumberland, | Shot by coal injuring body. |
| | 7, | Joseph Vishnefski, | Pennsylvania, | Northumberland, | |
| | 7, | Wally Kusavage, | Pennsylvania, | Northumberland, | Burned by keg of powder exploding. |
| | 7, | Joseph Brozkoskie, | Pennsylvania, | Northumberland, | |
| | 7, | Samuel Fetterman, | Midvalley, | Columbia, | Internally injured by fall of coal. |
| | 8, | Charles Penman, | Richards, | Northumberland, | Leg broken by falling. |
| | 13, | John L. Williams, Jr., | Richards, | Northumberland, | Scalded by steam valve blowing out. |
| | 14, | John Donnelly, | Locust Gap, | Northumberland, | Arm broken by falling against pipe. |
| | 16, | Nicholas Carran, | Henry Clay, | Northumberland, | Arms mangled by a loaded wagon. |
| | 18, | Samuel Wisnusky, | Cameron, | Northumberland, | Leg broken by fall of rock. |
| | 20, | Martin Widitz, | Cameron, | Northumberland, | Badly cut and bruised by falling down manway. |
| | 23, | Lewis Kellerman, | Neilson, | Northumberland, | Slightly burned by explosion of gas. |
| | 23, | John Rokiss, | Neilson, | Northumberland, | Slightly burned by explosion of gas. |



# EIGHTH ANTHRACITE DISTRICT.

(SCHUYLKILL COUNTY.)

Pottsville, Pa., February 16, 1898.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor of herewith presenting my annual report as Inspector of Mines of the Eighth Anthracite District, for the year ending December 31, 1897.

The total production of coal for the year was 4,306,222 tons, which is 66,375 tons more than the total production for the year 1896. The shipments, including the local sales, was 3,851,377 tons, which is 79,715 tons more than the shipments for the year 1896.

The number of fatal accidents during the year was 38, which is 8 less than for the year 1896.

In addition to the usual tabulated statistics, I send a brief description of the principal improvements that have been made and are being made at the collieries. I also send a description of each of the fatal accidents, which, I think, is an important part of a report of this character, as not only the general public can see how the accidents in and about the mines occur, but also should a few copies fall into the hands of those directly engaged or interested in mining, it might be the means of preventing a repetition of many of the accidents.

The general condition of the majority of the collieries in this district is satisfactory. There are a few exceptions which, while they are not in a dangerous condition, could be greatly improved.

As it has been said in previous reports, the large companies, and many of the individual operators are taking advantage of every improvement which conduces to the safety of their workmen and the properties under their charge, and they are anxious to prevent accidents, for, aside from the misery which they bring to the victims and their families, they are the source of great loss and annoyance to the owner and superintendent at the colliories where they occur. Yet, with all the extra precautions, accidents will occur as long as anthracite coal is mined, for, with the greater depth attained and the extension of the workings on the heavier dips below large areas of abandoned

workings, the dangers are greatly increased, and extra appliances and precautions have to be adopted to cope with them. It is plain that for a reduction of the number of accidents that are attributable to carelessness, we can only look to the workmen themselves and those who are in daily supervision over them.

Yours very respectfully,

JOHN MAGUIRE,
Inspector of Mines.

---

Summary, Eighth Anthracite District, 1897.

| | |
|---|---|
| Tons of coal produced, | 4,306,222 |
| Tons of coal used at mines for steam and heat, | 468,225 |
| Tons of coal sold to local trade and used by employes, | 88,894 |
| Railroad shipments of coal, in tons, | 3,762,483 |
| Tons of coal produced by washeries, which are included in total production, | 182,114 |
| Number of fatal accidents, | 38 |
| Number of non-fatal accidents, | 112 |
| Number of wives left widows, | 13 |
| Number of children left fatherless, | 42 |
| Number of persons employed, | 13,492 |
| Number of kegs of powder used, | 69,688 |
| Number of pounds of dynamite used, | 429,746 |
| Number of steam boilers in use, | 719 |
| Number of horses and mules, | 1,341 |
| Number of mine locomotives, | 25 |
| Tons of coal produced per fatal accident, | 113,584¾ |
| Tons of coal produced per each employe, | 319 1-6 |
| Death rate per thousand of employes by accident, | 2.8 |

Classification of Fatal and Non-Fatal Accidents for 1897.

| Causes of Accidents. | Fatal, inside. | Fatal, outside. | Non-fatal, inside. | Non-fatal, outside. | Total, inside and outside. |
|---|---|---|---|---|---|
| Cross head falling down sinking shaft, | 5 | ..... | ..... | ..... | 5 |
| Falls of slate and rock, | 3 | ..... | 12 | ..... | 15 |
| Falls of coal, | 8 | ..... | 20 | ..... | 28 |
| Explosions of powder, dynamite and caps, | 3 | ..... | 2 | ..... | 5 |
| Explosions of gas, | 2 | ..... | 23 | ..... | 32 |
| Premature explosions of blasts, | 3 | ..... | 4 | ..... | 7 |
| Crushed between cage and timber in shaft, | 1 | ..... | ..... | ..... | 1 |
| Falling in shaft, | 1 | ..... | ..... | ..... | 1 |
| By mine cars, | 1 | 2 | 16 | 2 | 21 |
| By railroad cars, | ..... | 1 | ..... | 1 | 2 |
| By machinery, | ..... | 1 | ..... | 4 | 5 |
| By flying coal from shots, | ..... | ..... | 7 | ..... | 7 |
| Miscellaneous, | ..... | ..... | 15 | 6 | 21 |
| Total, | 34 | 4 | 99 | 13 | 150 |

Nationality of those Killed and Injured.

| | Killed. | Injured. |
|---|---|---|
| Americans, | 17 | 38 |
| English, | 3 | 3 |
| Irish, | 2 | 14 |
| Germans, | 1 | 7 |
| Welsh, | ..... | 12 |
| Russian, | ..... | 1 |
| Poles, | 6 | 29 |
| Russian Poles, | 1 | 1 |
| Hungarians, | 8 | 16 |
| Total, | 38 | 112 |

## Table Showing the Number of Each Class of Employes in the Eighth Anthracite District in 1897—Inside.

| | | |
|---|---|---|
| Inside foremen, | 55 | |
| Fire bosses, | 100 | |
| Miners, | 3,470 | |
| Miners' laborers, | 1,612 | |
| Drivers and runners, | 543 | |
| Door boys and helpers, | 175 | |
| All other company men, | 2,257 | |
| Total inside in 1897, | | 8,212 |
| Total inside in 1896, | | 8,053 |
| Increase inside in 1897, | | 159 |

14—10—97

Outside.

| | | |
|---|---|---|
| Outside foremen, | 56 | |
| Blacksmiths and carpenters, | 234 | |
| Engineers and firemen, | 542 | |
| Slate pickers, | 2,204 | |
| All other company men, | 2,166 | |
| Superintendents, book-keepers and clerks, | 78 | |
| Total outside in 1897, | | 5,280 |
| Total outside in 1896, | | 5,282 |
| Decrease outside in 1897, | | 2 |

The examination of candidates for certificates as mine foremen and assistant mine foremen for the Eighth Anthracite District was held at Pottsville, in June, 1897.

The examining board was composed of Thomas Doyle, superintendent; David Lucker and Thomas Holihan, miners, and John Maguire, Mine Inspector.

The following were recommended to the Secretary of Internal Affairs for certificates of qualification:

Henry Oscar Rowe, Tower City, as mine foreman.
George Maley, Branchdale, as mine foreman.
John Doolin, Glen Carbon, as mine foreman.
Andrew Rogan, Coaldale, as mine foreman.
George Minnichback, Pottsville, as assistant mine foreman.
Joseph Soshe, St. Clair, as assistant mine foreman.
John S. Foley, Joliett, as assistant mine foreman.
William Bevan, St. Clair, as assistant mine foreman.
Thomas Hobin, Glen Carbon, as assistant mine foreman.
Joseph Steinmetz, Tuscarora, as assistant mine foreman.
John F. Ryan, Pottsville, as assistant mine foreman.
Fred. Sheidiger, Tamaqua, as assistant mine foreman.
Mich. E. Crowe, Minersville, as assistant mine foreman.
Geo. H. Beddow, Minersville, as assistant mine foreman.

## Description of Fatal Accidents.

A sad accident occurred at the New Wadesville shaft about 7 o'clock on the morning of January 13, while the men engaged in sinking the shaft were changing shifts. Four of the day shift men had gone down, and four of the night shift had been hoisted to the surface. After they had gotten off the bucket, William Leonard Taylor, chargeman of the day shift, with Henry Flynn, John Taylor and Peter Linko, laborers, got on to go down, taking with them Matthew Reddington.

the pump boy. The weather was very cold and during the time the bucket had been standing at the landing, the cross head had been frozen to the guides above the surface landing, and, unnoticed by the top man or those in the bucket, did not follow the bucket down. The bucket was stopped at the pump station, 200 feet below the surface, and Matthew Reddington got off and relieved Theodore Frankenstein, the night pump boy, who got on the bucket to go to the bottom to be hoisted with the next load of men. The bucket was again lowered, and when about 100 feet below the pump station, the cross head became loose by the jarring of the rope through it, and went down, striking the bucket with fearful force, breaking the cross head and one of the three chains, by which the bucket was suspended, knocked the four men off, causing them to fall to the bottom of the shaft, a distance of three hundred feet, killing them instantly. Theodore Frankenstein was inside of the bucket, but had been struck by part of the broken cross head, and was fatally injured, but had been left in the bucket, which was hanging sideways, being held by only two chains. The engineer, when he felt the jar, stopped the engine, and, not knowing anything of the condition of the bucket or cross head, was afraid to move either way, when David Jones, one of the men employed at the shaft, who had just arrived on the scene, quickly took in the situation and the need of prompt action, sprung on to the rope and slid down, at great risk to himself, as he did not know whether the bucket had been left on the rope or whether the rope had been broken between the surface and the bucket. He, however, succeeded in getting down safely and found Theodore Frankenstein as above described, and, after disengaging the bucket from the wreck of the cross head, guided him to the top, when he was sent to the Pottsville Hospital, but the poor boy died shortly after reaching there. The writer was at the shaft shortly after the accident, and made an examination as to the cause, and found the guides in the shaft in very good condition, and free from ice or anything that would prevent the cross head from following the bucket down. The steam pipe in the shaft kept the temperature much above the freezing point. There was a thin coating of ice on one of the guides, about ten feet above the surface landing, at the place where the cross head was when the bucket was at the landing, and I think that as the bucket had stood longer than usual on this trip, that the cross head froze and stuck there unnoticed by the top man or those on the bucket.

Elias Shell, a miner, was fatally injured at West Brookside colliery, January 14. He had fired a shot, which knocked out a prop; while dressing the loose stuff off, the slate fell on him, fracturing his spine. He died on January 28.

Michael Fay, a miner, was killed by a fall of coal at Silver Creek colliery, February 3.

Stephen Guidash, a miner, was killed at Kaska William colliery, February 10. While crossing the breast, a piece of coal fell from the top, which struck him, causing his death in a few minutes.

On February 16, William Daer and Joseph Stanesefski, both miners, were severely burned by an explosion of powder at Glendower colliery. They were working together as partners in a breast, and were making a cartridge, when a spark from Stanesefski's naked lamp, which was on his head, ignited the powder which was in the keg. Both died a few days afterward.

On February 17, John Mackie, a miner, was killed at the Pine Forrest colliery by a piece of coal falling upon him.

On March 2, John McDonald, an outside laborer, was killed at the Kalmia washery. He was engaged shovelling dirt into a conveyor line, which is 450 feet long, being near the far end of the line. By some means he got into the trough or on chains and was carried over the end wheel and scraped through the trough to the washery, where his dead body was found as it dropped from the scraper line.

On March 3, Thomas Barry, a pump man, and Fred. Krise, a young man who had gone down with Barry to see the place, were killed by an explosion of gas at the Middle Creek colliery.

On March 9, Richard Neal, a miner, was killed at Lincoln colliery by a fall of rock.

On March 16, Andrew Mishel, an outside laborer, was killed at Silver Creek Shaft colliery by having been crushed between cars.

On March 20, Ellsworth Batdorf, a miner, was killed at Lytle colliery. A large piece of the bottom bench slid out from face and crushed him against the loose stuff, killing him instantly.

On March 22, Thomas and Joseph Garland, brothers, were burned by an explosion of gas at the Lehigh Coal and Navigation No. 11 colliery. They had fired a shot about noon time, and, after eating their dinner, returned to the face with naked lamps, when the gas which had accumulated after the shot had been fired was ignited. Thomas was burned and severely injured by falling down the manway, and died from his injuries on the 23d. Joseph was burned on the hands and face, but recovered.

On March 25, John Shearstone was killed in the shaft of the Oak Hill colliery by having been caught between a cage and buntons.

On April 2, Joseph Casber, a laborer, employed in the third lift, West Holmes Vein gangway, at the Lytle colliery, was severly injured by the explosion of a box of dynamite caps, which he held in his hand. While handling them, a spark from his pipe fell into them. He died from his injuries on April 5.

On April 7, William Wolf, a driver, was killed at the Good Spring colliery. He was employed on the rock bank, and while bringing an empty car in, his mule took fright at cars running on trestle overhead

and ran away. While trying to unhitch the mule from the car, he fell in front of the car, which ran over him, injuring him so badly that he died on the way home.

On May 18, Michael Bitscavage, a laborer, was killed at Lytle colliery. A shot had been fired a short time before the accident, and it seems that the men rushed back to work again without making any examination, when a large piece of coal fell from the upper side, killing Bitscavage instantly.

On June 22, George Apolock, a laborer, was killed at Otto colliery, by coal flying from a blast.

On the night of June 24, Lazarus Williams, John Dobson, Dennis Leary and Elmer Ternes were severely burned by an explosion of gas at the Marion colliery. They were working at driving the tunnel north on the old level, and had cut the Little Diamond Vein on north dip. They drilled three long holes along the rib, to take the skip off all at once, and fired them together with an electric battery. The large quantity of stuff cut by the shots covered the end of the gas pipe, through which compressed air was carried to the face, thus cutting off the ventilation. About ten minutes after the shots had been fired, the men went back to the face, Williams carrying a naked light. He found the air pipe blocked and, without making any examination for gas, started to clear the stuff away, when the gas was ignited by his lamp. Dennis Leary and John Dobson were fatally burned, and died from their injuries June 28 and July 5, respectively. Elmer Ternes was severely burned; Lazarus Williams was also burned, but not as seriously as the others. The latter was clearly responsible for this accident, as he had been provided with safety lamps, and particularly warned by the inside foreman to be sure and make examination after firing.

William Bricker, a car runner, was severely injured at the Williams colliery, July 14, by having been run over by cars, and died from his injuries at the Pottsville Hospital, August 12.

John Moran was badly injured on July 19, at the Phoenix Park No. 3 colliery by a fall of slate; died July 27.

Bryan Conville, a miner, was severely injured at the Thomaston colliery, Mine Hill slope, on July 27. A large piece of top coal fell on him, which caused his death on September 25.

Andrew Foeck was instantly killed at the St. Clair colliery on September 24, by a runaway car.

Frank Gavaloski, a laborer, was killed at the St. Clair colliery, on September 27, by a fall of slate.

Matthew Kushanfskie, a miner, was killed at the East Ridge colliery, on September 27, by the explosion of a blast.

John Lellescopia, a miner, was killed at the East Ridge colliery on October 5, by a fall of coal.

An explosion of gas occurred at the Kaska William colliery, on the afternoon of October 14, by which Patrick Sweeney was instantly killed, and John Boner, Charles Mickens and Anthony Rice were fatally burned, and died on the following day. Peter Paul and Patrick Doyle were also burned at the same time, but recovered.

Andrew Hornjak, a miner, was killed at the Oak Hill colliery, on October 22, by the premature explosion of a blast.

Fred. Hulzaman, shift leader in sinking the new Lytle colliery shaft, was fatally injured on November 4. The shift was engaged at timbering about thirty feet from the bottom of the shaft, where a scaffold had been erected. About 7 o'clock P. M. the men had gone to the surface for supper. In going down again, those on the bucket with Hulzaman got off on scaffold. He went with the bucket to the bottom, and detached the bucket to send the rope up to let timber down. Wanting to get up to the scaffold, he took hold of the chain with his hands only, without having any foothold on the hook, and ascended in that way. When near the scaffold, he let loose and fell back to the bottom of the shaft, sustaining injuries from which he died at the Pottsville Hospital on November 25.

## Improvements Made at Collieries in 1897.

### Lytle Colliery.

A new shaft has been commenced about fourteen hundred feet south and one hundred feet east of the top of the Primrose No. 2 slope. This shaft is thirty-eight feet four inches long, north and south, and thirteen feet wide, east and west, clear of timber, and is divided into five compartments, each seven feet by thirteen, with buntons ten by twelve inches between each compartment. At the No. 2 Primrose vein slope, a new piece of slope has been sunk in the overlying strata, a distance of 342 feet. It commences about seventy feet south of the present slope, and connects with the slope below a flat or light grade in slope, and was sunk on a dip of forty-four degrees to make the grade of slope more uniform.

### Albright Colliery.

An airhole was sunk from the surface through the strata 130 feet deep, having an area of 100 square feet, which connects with the Tunnel Vein air-hole near the top of the saddle. The Salem vein fan was connected to this new airhole, which makes an improvement, and saves the air from escaping through the old workings. A new Cahall boiler, having a capacity of 200 horse power, was installed, which uses up the waste heat of eight plain cylinder boilers. Preparations are being made to work the upper lift of the Tunnel vein from the Salem slope.

### Oak Hill Colliery.

At the bottom of the shaft or fifth lift, the south tunnel was driven 515 feet, cutting the Black Heath vein, in good condition, nine feet nine inches thick on south dip of forty-three degrees. It was then continued, and has cut the White Ash vein, nine feet three inches thick in good condition. The distance from the top slate of the Black Heath to the bottom of the White Ash is 170 feet. An airhole was driven in the Black Heath vein, 394 feet long, from the fifth to the fourth lift. The north tunnel has been continued, and has cut the Skidmore vein, in good condition, five feet four inches thick. The tunnel from the Black Heath to the Skidmore vein is 120 feet long.

### Marion Colliery.

On the third or old lift, a tunnel was driven from the Big Tracy vein, 267 feet long, cutting the Little Diamond vein, in poor condition. The tunnel was continued 156 feet, cutting the Little Diamond vein again, on the north dip, in poor condition.

In the lower or fourth lift tunnel, the Big Tracy vein was cut 110 feet from the Little Tracy, and the tunnel continued 84 feet under the Big Tracy and then stopped.

A trial slope was sunk 175 feet west of the Lewis vein slope to a depth of 935 feet; vein in fair condition, dip about thirty degrees south.

### St. Clair Colliery.

A new single track slope is being sunk from the surface in the Buck Mountain vein, which commences near the mouth of the old Breen drift. The vein has a dip of about forty-two degrees south. The slope is being sunk eastward across the pitch on a grade of twenty-five degrees. It is now about 200 feet below the water level gangway, which is about 200 feet below the surface.

### East Ridge Colliery.

In the slope, or third level, a tunnel has been driven south from the Skidmore, 108 feet long, cutting the Buck Mountain vein. The tunnel has since been continued to the leader or bottom timber of the Buck Mountain, which is 63 feet. On the first lift another tunnel was driven from the Buck Mountain, cutting the bottom member of that vein at 106 feet. The vein is about six and one-half feet thick, of which about three feet is coal. A tunnel was also driven to the same vein in the second lift. Length, 74 feet.

### Pine Hill Colliery.

The slope is being sunk deeper in the Buck Mountain vein, which is now about 100 feet below the water level gangway.

### Williams Colliery.

A tunnel, 260 feet long, has been driven north from the Tracy vein, cutting a vein about seven feet thick. An overcast tunnel is being driven back to the Tracy, at right angles to dip, to ventilate this vein.

### Bell Colliery.

The old breaker was torn down, and a more modern one erected in its stead, which commenced operations about October 1.

### Ellsworth Colliery.

The breaker was destroyed by fire on the night of October 5. A new and more modern breaker is now in course of construction.

### Little Diamond Colliery.

A new lift of 225 feet was sunk on the Little Diamond vein slope, making the depth from surface about 475 feet. The vein is four feet nine inches thick at the bottom of the slope. Dip, about thirty-five degrees south.

## Improvements Made During the Year 1897 by the Philadelphia and Reading Coal and Iron Company.

### West Brookside Colliery.

The No. 4 vein slope, overlying the No. 3 No. 5 vein slope, has been sunk during the year 462 feet, making a total depth of 2,175 feet. The seventh lift gangways have been opened and the sinking is being continued. In the No. 3 No. 5 vein slope, a tunnel has been driven 300 feet east of the slope on the No. 7 lift, below water level to the No. 6 vein, cutting the vein about three feet thick, having a pitch of fifteen degrees; length of tunnel, 126 feet.

In the No. 4 slope, the tunnel that was commenced at No. 25 breast, in West gangway in 1896, has been completed, cutting the No. 4 vein, in good condition. Length of tunnel, forty-seven and one-third yards. Another tunnel has been driven from the No. 5 vein to the No. 4 vein, in same gangway, at No. 60 breast, cutting the No. 4 vein, in good condition.

The East Brookside No. 4 vein tender slope has been sunk during the year 180 yards, making the depth from surface 423 1-3 yards, and the sinking will be continued to the level of the lower lift of the No. 5 vein slope. In the lower lift of the No. 5 vein slope a tunnel has been driven opposite the bottom of the plane, from the No. 5 vein to the No. 4 vein, length 89 yards. A tunnel is also being driven from the No. 4 vein to the No. 5 vein, opposite the bottom of the slope.

### Lincoln Colliery.

A tunnel is being driven from the No. 1 vein to the No. 2 vein. It starts about 100 feet east of the No. 1 vein slope,on the sixth lift below water level, and will connect with the bottom of the No. 2 vein slope in the sixth lift. It is now in 71 yards, and when completed will be about 300 yards long.

### Phoenix Park No. 3 Colliery.

A tunnel, which starts at No. 43 chute on the fifth lift, East Diamond vein gangway, has been driven through the saddle from the south to the north dip, the length of which is 435 feet. A proving hole was sunk from the top of saddle on the north dip, to the level of the gangway before the tunnel was commenced.

### Thomaston Colliery.

The new Lelar vein slope has been sunk to a depth of 306 2-3 yards from the surface and 85 yards below the second lift on bottom of the Crosby vein slope; at the bottom of the slope a short tunnel cuts the Crosby vein, which is 11 feet thick and of fair coal. Gangways are turned east and west, and connections are now being made from the Crosby vein to the airhole on the Lelar vein, east of the slope, which is being made with a sectional area of 80 square feet.

### Glendower Colliery.

A tunnel has been started at the bottom of the No. 2 plane, in the Glendower slope, to be driven to the Buck Mountain vein. It is now in about 20 yards.

### Wadesville Shaft Colliery.

At the old shaft, ten new return boilers have been erected, taking the place of the old boiler plant. A new pair of hoisting engines, with cylinders thirty inches in diameter, and sixty-inch stroke, were erected in place of the old coal hoisting engines, with which they started to hoist the water out of the shaft on July 14, the water at that time being up to the water levels.

The new shaft was completed on the 3d of April, being 749 feet in depth from the surface to the bottom slate of the Mammoth vein. The Mammoth vein is 25 feet thick and of good coal. Above the Mammoth there is 12 feet of slate between it and the Seven Foot vein, which is 8 feet thick of good coal. Above the Seven Foot there is 7 feet of slate between it and the Four Foot vein, which is 4 feet thick of good coal; dip, 19 degrees south.

A trial hole has been sunk on the Seven Foot vein, south of the shaft to a depth of 30 yards. Pump gangways were driven in the Seven Foot

vein 75 yards long on each side of the shaft. The main gangways were then opened east and west on the Seven Foot vein. At 243 feet east of the shaft two holes were driven up the pitch to tap the water in the old shaft, which was successfully done. A pair of new hoisting engines were erected, having 40-inch diameter cylinders and 60-inch stroke. These engines were started to hoist water on November 13, with two tanks, each holding eighteen hundred gallons, and at this writing the water has been nearly all taken out to the bottom of the old shaft.

### Eagle Hill Colliery.

A new air shaft is being sunk from the surface to the workings below, having an area of 120 square feet. It is now down 175 feet, and when completed will be provided with appliances for hoisting men, which will make an additional outlet.

A new Cahall steam boiler of 250-horse power, which is fired direct, has been added to the steam plant. Two more of the same type are being erected, which will utilize the waste heat from twenty plain cylinder boilers.

### Collieries Abandoned.

The East Franklin colliery, which has been idle since 1893, was dismantled and abandoned during the year.

At the Otto colliery, the bore hole slope workings, which are inside of the old White Ash slope workings, were stopped on September 17, and abandoned. Both collieries are owned by the Philadelphia and Reading Coal and Iron Company.

TABLE No. 1—Showing Location, etc., of Collieries in the Eighth Anthracite District.

| Name of Colliery. | Name of Operator. | Location—Schuylkill County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| West Brookside, | Phila. & Reading Coal and Iron Co., | Tower City, | | |
| Lincoln, | Phila. & Reading Coal and Iron Co., | Tremont township, | | |
| Good Spring, | Phila. & Reading Coal and Iron Co., | Good Spring, | | |
| Middle Creek Shaft, | Phila. & Reading Coal and Iron Co., | Frailey township, | | |
| Otto, | Phila. & Reading Coal and Iron Co., | Branchdale, | | |
| Phoenix Park No. 3, | Phila. & Reading Coal and Iron Co., | Phoenix Park, | | |
| Thomaston, | Phila. & Reading Coal and Iron Co., | Heckscherville, | R. C. Luther, gen. supt., | Pottsville. |
| Richardson, | Phila. & Reading Coal and Iron Co., | Glen Carbon, | John Veith, mining supt., | Pottsville. |
| Glendower, | Phila. & Reading Coal and Iron Co., | Glendower, | | |
| Pine Forest, | Phila. & Reading Coal and Iron Co., | St. Clair, | | |
| Eagle Hill, | Phila. & Reading Coal and Iron Co., | Cumbola, | | |
| Silver Creek Shaft, | Phila. & Reading Coal and Iron Co., | Silver Creek, | | |
| Wadesville, | Phila. & Reading Coal and Iron Co., | Wadesville, | | |
| Kalmia Washery, | Phila. & Reading Coal and Iron Co., | Tremont township, | | |
| Lehigh Coal & Nav. No. 8, | Lehigh Coal and Navigation Co., | Coaldale, | | |
| Lehigh Coal & Nav. No. 10, | Lehigh Coal and Navigation Co., | Rahn township, | W. D. Zehner, supt., | Landsford. |
| Lehigh Coal & Nav. No. 11, | Lehigh Coal and Navigation Co., | Rahn township, | Baird Snyder, Jr., ass't sup. | Landsford. |
| Lehigh Coal & Nav. No. 12, | Lehigh Coal and Navigation Co., | Rahn township, | | |
| York Farm, | Lehigh Valley Coal Co., | Pottsville, | W. A. Lathrop, | Wilkes-Barre. |
| Blackwood, | Lehigh Valley Coal Co., | Blackwood, | W. A. Lathrop, | Wilkes-Barre. |
| Morea, | Dodson Coal Co., | Morea, | E. L. Bullock, | Audenreid. |
| Kaska William, | Dodson Coal Co., | Middleport, | E. L. Bullock, | Audenreid. |
| St. Clair, | St. Clair Coal Co., | St. Clair, | Rich Williams, | St. Clair. |
| Greenwood, | Beddall Bros. & Co., | Tamaqua, | M. A. Gerber, | Tamaqua. |
| East Lehigh, | Mitchell & Shepp, | Tamaqua, | Jos. Mitchell, | Tamaqua. |
| West Lehigh, | Dunkleberger & Young, | Tamaqua, | John Young, | Tamaqua. |
| Oak Hill, | Leisenring & Co., | Minersville, | Walter Leisenring, | Minersville. |
| Lytle, | Lytle Coal Co., | Minersville, | Arthur Kennedy, | Minersville. |
| Albright, | Albright Coal Co., | Llewellyn, | Jas. J. Archbald, | Pottsville. |
| Marion, | Marion Coal Co., | St. Clair, | A. Reese, | Pottsville. |
| Ellsworth, | Davis Bros., | New Castle, | John H. Davis, | St. Clair. |
| Roberts, | Roberts Coal Co., | New Castle, | T. D. Jones, | Hazleton. |
| Howard, | E. C. White & Co., | Wadesville, | Rich. White, | Pottsville. |
| Mt. Hope, | Linderman & Co., | St. Clair, | S. D. Kynor, | Pottsville. |
| Williams, | Williams Coal Co., | Fishbach, | W. T. Smyth, | Pottsville. |
| East Ridge, | East Ridge Coal Co., | Heckschersville, | Henry L. Howell, | Pottsville. |
| Pine Hill, | Pine Hill Coal Co., | Minersville, | J. D. Stone, | Pottsville. |
| Lorberry, | Losch, Moore & Co., | Lorberry, | Simon Moore, | Tremont. |
| Little Diamond, | F. J. Simons, | Minersville, | T. J. Simons, | Schuylkill Haven. |
| Bell, | Gorman, Campion & Co., | Brockville, | Joseph Gorman, | Pottsville. |
| Tuscarora, | Slattery Bros., | Tuscarora, | Daniel Slattery, | Tuscarora. |
| Sebastopol, | Joseph H. Denning, | St. Clair, | Joseph Denning, | St. Clair. |
| Jugular, | Whims & Hepner, | New Castle, | James W. Whines, | St. Clair. |
| Wolfe Creek Washery, | Stoddard Coal Co., | Minersville, | J. I. Hollenback, | Pottsville. |
| Palmer Washery, | Tyler, McTurk & Co., | New Philadelphia, | Patrick J. Kelly, | Silver Creek. |
| Manhattan Washery, | Manhattan Coal ..Co., | Forestville, | Martin Otterbein, | Pottsville. |
| Broad Mt. Washery, | Broad Mountain Coal Co., | New Castle, | James J. Whines, | St. Clair. |
| Forestville Washery, | Forest Coal Co., Limited, | Forestville, | George Moore, | Minersville. |

TABLE NO. 2.—Gives the Total Number of Tons of Coal Mined in each Colliery, Number of Days Worked, Number of Employes, Number of Persons Killed and Injured, Number of Kegs of Powder used, etc., in the Eighth Anthracite District for the year ending December 31, 1897.

| Names of Collieries. | Location—Schuylkill County. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs of powder used. | Number of pounds of dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West Brookside, | Tower City, | 369,860 | 31,734 | ..... | 338,126 | 185.7 | 1,377 | 1 | 8 | 7,737 | 44,372 | 48 | 106 | 5 |
| Lincoln, | Tremont township, | 259,800 | 17,280 | 2,758 | 239,762 | 184.6 | 654 | 1 | 2 | 4,736 | 7,540 | 34 | 74 | ..... |
| Good Spring, | Good Spring, | 124,393 | 10,992 | 1,690 | 111,711 | 151.2 | 383 | 1 | 1 | 3,216 | 6,644 | 26 | 32 | ..... |
| Middle Creek Shaft, | Frailey township, | 8,535 | 2,671 | 719 | 5,145 | 17.5 | 192 | 2 | ..... | ..... | 2,792 | 14 | ..... | ..... |
| Otto, | Branchdale, | 143,300 | 33,263 | 1,704 | 108,333 | 127.0 | 461 | 1 | 5 | 937 | 24,767 | 41 | 44 | 1 |
| Phoenix Park No. 3, | Phoenix Park, | 70,089 | 11,212 | 660 | 58,217 | 126.9 | 300 | 1 | 5 | 703 | 7,641 | 22 | 40 | ..... |
| Thomaston, | Hecksherville, | 120,451 | 24,810 | 821 | 94,820 | 125.6 | 527 | 1 | ..... | 3,146 | 8,762 | 52 | 70 | ..... |
| Richardson, | Glen Carbon, | 91,737 | 17,699 | 2 87 | 73,751 | 113.9 | 321 | ..... | 1 | 627 | 22,745 | 33 | 32 | ..... |
| Glendower, | Glendower, | 117,664 | 25,255 | 568 | 91,841 | 128.2 | 473 | 2 | ..... | 2,666 | 8,251 | 20 | 74 | 1 |
| Pine Forest, | St. Clair, | 83,269 | 11,223 | 1,784 | 70,262 | 116.7 | 386 | 1 | 4 | 2,911 | 3,588 | 21 | 36 | ..... |
| Eagle Hill, | Cumbola, | 157,444 | 28,226 | 1,027 | 128,191 | 123.0 | 624 | ..... | 6 | 2,593 | 10,312 | 34 | 55 | 1 |
| Silver Creek Shaft, | Silver Creek, | 223,589 | 25,475 | 2,182 | 195,932 | 131.4 | 924 | 2 | 1 | 3,276 | 9,735 | 20 | 58 | ..... |
| Wadesville, | Wadesville, | 219 | 13,380 | 219 | ..... | ..... | 87 | 5 | 1 | 193 | 5,050 | 10 | 9 | ..... |
| Kalmia Washery, | Tremont township, | 34,223 | 1,103 | ..... | 33,120 | 196.6 | 24 | 1 | ..... | ..... | ..... | 4 | ..... | ..... |
| Lehigh Coal & Nav. No. 8, | Coaldale, | 222,855 | 13,277 | 3,236 | 206,342 | 155.0 | 515 | ..... | 8 | 780 | 32,525 | 14 | 86 | ..... |
| Lehigh Coal & Nav. No. 10, | Rahn township, | 185,020 | 20,465 | 4,574 | 159,981 | 147.6 | 548 | ..... | 4 | 960 | 16,950 | 28 | 85 | 1 |
| Lehigh Coal & Nav. No. 11, | Rahn township, | 196,632 | 14,285 | 3,500 | 178,757 | 153.4 | 431 | 1 | 5 | 2,100 | 14,800 | 21 | 68 | 2 |
| Lehigh Coal & Nav. No. 12, | Rahn township, | 107,419 | 13,011 | ..... | 94,408 | 164.9 | 300 | ..... | ..... | 1,080 | 15,375 | 15 | 51 | ..... |
| York Farm, | Pottsville, | 51,243 | 12,318 | 20,454 | 18,471 | 71.5 | 209 | ..... | ..... | 394 | 5,258 | 27 | 20 | 1 |
| Blackwood, | Blackwood, | 20,020 | ..... | 4,344 | 15,676 | ..... | 29 | ..... | ..... | ..... | ..... | 11 | 2 | 2 |
| Merea, | Merea, | 261,864 | 20,660 | 802 | 241,062 | 217.3 | 566 | ..... | 5 | 2,311 | 26,750 | 40 | 57 | 3 |
| Kaska William, | Middleport, | 159,862 | 20,200 | 741 | 138,921 | 224.4 | 368 | 5 | 3 | 1,435 | 13,750 | 23 | 24 | ..... |
| St. Clair, | St. Clair, | 120,953 | 9,565 | 261 | 111,127 | 157.0 | 389 | 2 | 11 | 3,223 | 2,589 | 11 | 28 | 2 |
| Greenwood, | Tamaqua, | 78,782 | 1,800 | 5,286 | 71,696 | 193.0 | 185 | ..... | 1 | 1,570 | 2,300 | 8 | 15 | 1 |
| East Lehigh, | Tamaqua, | 6,296 | 200 | 2,145 | 3,951 | 196.0 | 25 | ..... | ..... | 129 | 300 | 2 | 3 | ..... |
| West Lehigh, | Tamaqua, | 20,675 | 623 | 4,108 | 15,944 | 217.0 | 65 | ..... | 1 | 1,135 | 1,800 | 3 | 9 | ..... |
| Oak Hill, | Minersville, | 148,143 | 10,566 | 1,225 | 135,852 | 161.0 | 464 | 2 | 3 | 3,375 | 8,850 | 21 | 38 | 1 |
| Little, | Minersville, | 243,704 | 25,929 | 2,356 | 215,419 | 204.0 | 651 | 4 | 17 | 5,185 | 47,250 | 29 | 48 | 1 |
| Albright, | Llewellyn, | 74,544 | 11,428 | 566 | 62,550 | 182.5 | 244 | ..... | 1 | 423 | 32,425 | 11 | 22 | ..... |
| Marion, | St. Clair, | 50,116 | 10,000 | 1,372 | 38,744 | 184.0 | 186 | 2 | 9 | 1,300 | 10,000 | 6 | 16 | ..... |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ellsworth, | New Castle, | 19,798 | 1,500 | 193 | 18,105 | 156.0 | 63 | ..... | ..... | 44 | 4,600 | 3 | 6 | ..... |
| Roberts, | New Castle, | 33,930 | 3,832 | ..... | 30,098 | 191.6 | 75 | ..... | ..... | 42 | 6,500 | 7 | 11 | ..... |
| Howard, | Wadesville, | 19,772 | 2,920 | 600 | 16,252 | 185.0 | 83 | ..... | ..... | 469 | ..... | 7 | 6 | ..... |
| Mt. Hope, | St. Clair, | 63,439 | 5,700 | 5,614 | 52,125 | 174.5 | 152 | ..... | ..... | 1,616 | 15,450 | 15 | 22 | 2 |
| Williams, | Fishbach, | 84,139 | 3,650 | 4,017 | 76,472 | 148.0 | 388 | 1 | 7 | 2,743 | 5,325 | 4 | 20 | ..... |
| East Ridge, | Heckscherville, | 78,526 | 2,775 | ..... | 75,751 | 112.0 | 350 | 2 | ..... | 3,163 | ..... | 2 | 24 | ..... |
| Pine Hill, | Minersville, | 32,500 | 2,500 | 200 | 29,800 | 180.0 | 121 | ..... | 1 | 950 | 950 | 5 | 8 | ..... |
| Lorberry, | Lorberry, | 33,174 | 960 | 1,263 | 30,951 | 192.5 | 91 | ..... | ..... | 835 | 1,550 | 3 | 9 | ..... |
| Little Diamond, | Minersville, | 12,255 | 2,010 | ..... | 10,245 | 131.0 | 56 | ..... | 1 | 380 | 1,000 | 2 | 2 | ..... |
| Bell, | Brockville, | 7,893 | 415 | 8 | 7,470 | 83.0 | 50 | ..... | ..... | 235 | 700 | 2 | 2 | ..... |
| Tuscarora, | Tuscarora, | 8,185 | 80 | 343 | 7,762 | 155.7 | 37 | ..... | ..... | 598 | 250 | 1 | 5 | ..... |
| Sebastopol, | St. Clair, | 7,072 | 250 | 6,822 | ..... | 250.0 | 28 | ..... | 1 | 40 | 200 | 2 | 11 | ..... |
| Jugular, | New Castle, | 5,047 | 222 | 84 | 4,741 | 111.0 | 17 | ..... | ..... | 2 | 100 | 2 | 5 | ..... |
| Total, | | 4,158,331 | 465,204 | 88,623 | 3,617,884 | 6,426.9 | 13,359 | 38 | 112 | 69,688 | 429,746 | 704 | 1,333 | 24 |
| Wolfe Creek Washery, | Minersville, | 59,623 | 1,644 | 256 | 57,723 | 155.1 | 34 | ..... | ..... | ..... | ..... | 5 | 2 | ..... |
| Palmer Washery, | New Philadelphia, | 29,714 | 510 | ..... | 29,204 | 82.5 | 34 | ..... | ..... | ..... | ..... | 2 | 5 | 1 |
| Manhattan Washery, | Forrestville, | 16,487 | 312 | ..... | 16,175 | 156.0 | 14 | ..... | ..... | ..... | ..... | 2 | 1 | ..... |
| Broad Mountain Washery, | New Castle, | 37,215 | 200 | 15 | 37,000 | 208.0 | 36 | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| Forrestville Washery, | Forrestville, | 4,852 | 355 | ..... | 4,497 | 88.8 | 15 | ..... | ..... | ..... | ..... | 4 | ..... | ..... |
| | | 4,306,222 | 468,225 | 88,894 | 3,762,483 | 7,117.3 | 13,492 | 38 | 112 | 69,688 | 429,746 | 719 | 1,341 | 25 |

TABLE No. 3.—Showing the Number of each Class of Employes at each Colliery in the Eighth Anthracite District, during the Year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers, and clerks. | Total outside. | |
| West Brookside, | 5 | 7 | 360 | 266 | 51 | 26 | 255 | 970 | 3 | 14 | 48 | 157 | 182 | 3 | 407 | 1,377 |
| Lincoln, | 4 | 3 | 201 | 99 | 26 | 1 | 143 | 477 | 2 | 7 | 28 | 72 | 66 | 2 | 177 | 654 |
| Good Spring, | 1 | 3 | 114 | 33 | 6 | ..... | 62 | 219 | 1 | 6 | 14 | 87 | 54 | 2 | 164 | 383 |
| Middle Creek Shaft, | 1 | 3 | 48 | 20 | 2 | 3 | 25 | 102 | 1 | 5 | 14 | 29 | 40 | 1 | 90 | 192 |
| Otto, | 2 | 5 | 133 | 38 | 16 | 4 | 63 | 261 | 2 | 7 | 27 | 76 | 86 | 2 | 200 | 461 |
| Phoenix Park, | 1 | 4 | 100 | 36 | 10 | 2 | 39 | 192 | 1 | 5 | 11 | 55 | 35 | 1 | 108 | 300 |
| Thomaston, | 2 | 6 | 153 | 56 | 20 | 11 | 82 | 330 | 2 | 5 | 25 | 91 | 72 | 2 | 197 | 527 |
| Richardson, | 1 | 4 | 71 | 10 | 7 | 10 | 90 | 193 | 1 | 5 | 16 | 51 | 53 | 2 | 128 | 321 |
| Glendower, | 1 | 4 | 106 | 34 | 21 | 6 | 93 | 265 | 2 | 9 | 18 | 94 | 83 | 2 | 208 | 473 |
| Pine Forrest, | 2 | 4 | 108 | 45 | 10 | 1 | 59 | 229 | 1 | 4 | 16 | 82 | 52 | 2 | 157 | 386 |
| Eagle Hill, | 2 | 5 | 173 | 83 | 20 | 9 | 110 | 408 | 2 | 10 | 21 | 102 | 79 | 2 | 216 | 624 |
| Silver Creek Shaft, | 1 | 8 | 269 | 110 | 24 | 8 | 192 | 612 | 2 | 9 | 21 | 184 | 94 | 2 | 312 | 924 |
| Wadesville, | 1 | ..... | ..... | ..... | ..... | ..... | 13 | 14 | 1 | 5 | 22 | ..... | 44 | 1 | 73 | 87 |
| Kalmia Washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 2 | 6 | 13 | 1 | 24 | 24 |
| Lehigh Coal and Navigation, No. 8, | 2 | 5 | 82 | 27 | 34 | 11 | 192 | 353 | 1 | 9 | 14 | 73 | 65 | ..... | 162 | 515 |
| Lehigh Coal and Navigation No. 10, | 2 | 7 | 94 | 38 | 33 | 13 | 148 | 335 | 1 | 6 | 21 | 100 | 85 | ..... | 213 | 548 |
| Lehigh Coal and Navigation No. 11, | 1 | 3 | 84 | 23 | 30 | 8 | 103 | 252 | 1 | 8 | 17 | 70 | 83 | ..... | 179 | 431 |
| Lehigh Coal and Navigation No. 12, | 1 | 3 | 59 | 33 | 21 | 9 | 91 | 217 | 1 | 3 | 11 | 45 | 23 | ..... | 83 | 300 |
| York Farm, | 1 | 4 | 67 | 18 | 6 | 2 | 18 | 116 | 1 | 5 | 16 | 21 | 47 | 3 | 93 | 209 |
| Blackwood, | 1 | ..... | ..... | ..... | ..... | ..... | 2 | 3 | 1 | ..... | ..... | ..... | 23 | 2 | 26 | 29 |
| Morea, | 1 | 1 | 92 | 65 | 23 | 4 | 56 | 242 | 1 | 13 | 21 | 86 | 140 | 3 | 264 | 506 |
| Kaska William, | 1 | 2 | 82 | 58 | 14 | 7 | 53 | 217 | 1 | 7 | 18 | 65 | 58 | 2 | 151 | 368 |
| St. Clair, | 2 | 1 | 72 | 97 | 28 | 4 | 13 | 217 | 1 | 18 | 6 | 60 | 84 | 3 | 172 | 389 |
| Greenwood, | 1 | 1 | 54 | 17 | 6 | 1 | 18 | 98 | 1 | 3 | 2 | 37 | 42 | 2 | 87 | 185 |
| East Lehigh, | 1 | ..... | 7 | 2 | 1 | ..... | ..... | 11 | 1 | ..... | 1 | 6 | 5 | 1 | 14 | 25 |
| West Lehigh, | 1 | ..... | 20 | 4 | 4 | 2 | 2 | 33 | 1 | 2 | 3 | 14 | 11 | 1 | 32 | 65 |
| Oak Hill, | 1 | 3 | 180 | 70 | 20 | 6 | 40 | 320 | 1 | 7 | 14 | 65 | 53 | 4 | 144 | 464 |
| Albright, | 1 | 3 | 73 | 29 | 12 | 3 | 19 | 141 | 1 | 9 | 14 | 53 | 33 | 3 | 103 | 244 |
| Marion, | 1 | 2 | 60 | 15 | 6 | 2 | 30 | 116 | 1 | 4 | 11 | 34 | 17 | 3 | 70 | 186 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lytle, | 1 | 4 | 156 | 61 | 20 | 2 | 125 | 369 | 1 | 19 | 32 | 108 | 119 | 3 | 282 | 651 |
| Ellsworth, | 1 | 1 | 8 | 14 | 4 | ..... | ..... | 28 | 1 | 2 | 2 | 22 | 7 | 1 | 35 | 63 |
| Roberts, | 1 | ..... | 23 | 16 | 4 | ..... | 2 | 46 | 1 | 3 | 4 | 8 | 12 | 1 | 29 | 75 |
| Howard, | 1 | ..... | 36 | 1 | 5 | 1 | 3 | 47 | 1 | 1 | 3 | 13 | 17 | 1 | 36 | 83 |
| Mt. Hope, | 1 | 1 | 8 | ..... | 4 | ..... | 20 | 34 | 2 | 4 | 16 | 25 | 69 | 2 | 118 | 152 |
| Williams, | 1 | 3 | 144 | 68 | 16 | 13 | 39 | 284 | 1 | 4 | 5 | 48 | 43 | 3 | 104 | 388 |
| East Ridge, | 1 | ..... | 100 | 70 | 10 | 4 | 35 | 260 | 1 | 4 | 5 | 100 | 37 | 3 | 150 | 350 |
| Pine Hill, | 1 | ..... | 36 | 38 | 3 | ..... | 7 | 85 | 1 | 2 | 4 | 20 | 8 | 1 | 36 | 121 |
| Lorberry, | 1 | ..... | 29 | 15 | 10 | 1 | 7 | 63 | 1 | 2 | 2 | 12 | 10 | 1 | 28 | 91 |
| Little Diamond, | 1 | ..... | 25 | 10 | 1 | ..... | 2 | 39 | 1 | 1 | 4 | 3 | 7 | 1 | 17 | 56 |
| Bell, | 1 | ..... | 21 | 5 | 2 | ..... | 5 | 34 | 1 | 2 | 1 | 6 | 5 | 1 | 16 | 50 |
| Tuscarora, | 1 | ..... | 18 | 3 | 2 | 1 | ..... | 25 | 1 | 1 | 1 | 5 | 3 | 1 | 12 | 37 |
| Sebastopol, | 1 | ..... | 2 | 3 | 1 | ..... | 1 | 8 | 1 | ..... | 1 | 3 | 15 | ..... | 20 | 28 |
| Jugular, | ..... | ..... | 2 | 5 | ..... | ..... | ..... | 7 | ..... | ..... | 2 | 3 | 4 | 1 | 10 | 17 |
| Total, | 55 | 100 | 3,470 | 1,612 | 543 | 175 | 2,257 | 8,212 | 51 | 231 | 534 | 2,191 | 2,068 | 72 | 5,147 | 13,359 |
| Wolfe Creek Washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 4 | 7 | 19 | 2 | 34 | 34 |
| Palmer Washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 2 | 2 | 27 | 1 | 34 | 34 |
| Manhattan Washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 1 | 11 | ..... | 14 | 14 |
| Broad Mountain Washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... | 32 | 2 | 36 | 36 |
| Forrestville Washery, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 3 | 9 | 1 | 15 | 15 |
| Total, | 55 | 100 | 3,470 | 1,612 | 543 | 175 | 2,257 | 8,212 | 56 | 234 | 542 | 2,224 | 2,166 | 78 | 5,280 | 13,492 |

TABLE No. 4.—List of Fatal Accidents that Occurred in and about the Mines of the Eighth Anthracite District, for the Year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—Schuylkill County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Jan. 13. | William L. Taylor, | Shift leader, | 44 | M. | 3 | Wadesville Shaft, | Wadesville, | Killed by crosshead used in sinking shaft freezing to guides at top of shaft. While they were descending in bucket, after they had gone down about 300 feet crosshead became loose and fell on them. |
| 13. | John Taylor, | Laborer, | 23 | M. | 1 | Wadesville Shaft, | Wadesville, | |
| 13. | Henry Flynn, | Laborer, | 30 | M. | 2 | Wadesville Shaft, | Wadesville, | |
| 13. | Peter Tinco, | Laborer, | 32 | M. | 3 | Wadesville Shaft, | Wadesville, | |
| 13. | Theodore Frankenstein, | Pump boy, | 15 | S. | .... | Wadesville Shaft, | Wadesville, | |
| 14. | Elias Shell, | Miner, | 51 | W. | 5 | West Brookside, | Tower City, | Back broken by fall of slate; died Jan. 28. |
| Feb. 3. | Mich. Fay, | Miner, | 35 | S. | .... | Silver Creek Shaft, | Silver Creek, | Killed by a fall of coal. |
| 10. | Stephen Guidash, | Miner, | 30 | S. | .... | Kaska William, | Middleport, | Killed by a fall of coal. |
| 16. | William Baer, | Miner, | 30 | S. | .... | Glendower, | Glendower, | Burned by explosion of powder; died February 28. |
| 16. | Joseph Staneshefski, | Miner, | 30 | M. | .... | Glendower, | Glendower, | Burned by explosion of powder; died February 24. |
| 17. | John Mackie, | Miner, | 35 | M. | 3 | Pine Forest, | St. Clair, | Killed by a fall of coal. |
| Mar. 2. | John McDonald, | Outside laborer, | 17 | S. | .... | Kalmia Washery, | Tremont township, | Killed by falling into scraper line. |
| 3. | Thomas Barry, | Pumpman, | 26 | S. | .... | Middle Creek, | Frailey township, | Killed by an explosion of gas. |
| 3. | Fred Krise, | Not employed, | 16 | S. | .... | Middle Creek, | Frailey township, | Killed by an explosion of gas. |
| 9. | Richard Neal, | Miner, | 24 | S. | .... | Lincoln, | Tremont township, | Killed by a fall of coal. |
| 15. | Andrew Mishel, | Outside laborer, | 30 | S. | .... | Silver Creek Shaft, | Silver Creek, | Killed by being crushed between railroad cars. |
| 20. | Ellsworth Batdorf, | Miner, | 38 | M. | 3 | L. Co. Nav. No. 11, | Minersville, | Killed by a fall of coal. |
| 22. | Thos. Garland, | Miner, | 34 | M. | 5 | Lytle, | Rahn township, | Burned by an explosion of gas; died March 23. |
| 25. | John Shearstone, | Laborer, | 25 | S. | .... | Oak Hill, | Minersville, | Killed by having been caught between cage and bunton in shaft. |
| April 2. | Joseph Casber, | Laborer, | 30 | S. | .... | Lytle, | Minersville, | Injured by explosion of a box of dynamite caps; died April 5. |
| 7. | William Wolfe, | Driver, | 17 | S. | .... | Good Spring, | Good Spring, | Killed by falling under a car. |
| May 18. | Mich. Bitscavage, | Laborer, | 30 | S. | .... | Lytle, | Minersville, | Killed by a fall of coal. |
| June 22. | George Apelleck, | Laborer, | 22 | S. | .... | Otto, | Branchdale, | Killed by premature explosion of a blast. |
| 24. | John Dobson, | Rock man, | 35 | S. | .... | Marion, | St. Clair, | Fatally burned by an explosion of gas; died July 5. |
| 24. | Dennis Leary, | Laborer, | 20 | S. | .... | Marion, | St. Clair, | Fatally burned by an explosion of gas died June 28. |
| July 14. | William Bricker, | Car runner, | 20 | S. | .... | Williams, | Fishback, | Fatally injured by falling under cars; died August 12. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| July | 19. | John Moran, | Miner, | 35 | M. | 4 | Phoenix Park No. 3, | Phoenix Park, | Back broken by a fall of slate; died July 27. |
| | 27. | Bryan Conville, | Miner, | 42 | M. | 3 | Thomaston, | Hecksehersville, | Badly injured by a fall of coal; died September 25. |
| Sept. | 24. | Andrew Fasek, | Outside laborer, | 33 | M. | 5 | St. Clair, | St. Clair, | Killed by being struck by runaway car. |
| | 27. | Frank Gavaleska, | Laborer, | 32 | M. | | St. Clair, | St. Clair, | Killed by fall of slate. |
| | 27. | Mathew Krishunisk, | Miner, | 34 | M. | | East Ridge, | Hecksehersville, | Killed by premature explosion of a blast. |
| Oct. | 5. | John Tellesoppa, | Miner, | 35 | M. | | East Ridge, | Hecksehersville, | Killed by a fall of coal. |
| | 14. | Patrick Sweeny, | Miner, | 29 | M. | | Kaska William, | Middleport, | Instantly killed by an explosion of gas. |
| | 14. | John Beber, | Miner, | 26 | M. | | Kaska William, | Middleport, | Burned by same explosion; died on 15th. |
| | 14. | Charles Mi kins, | Miner, | 33 | M. | | Kaska William, | Middleport, | Burned by same explosion; died on 15th. |
| | 14. | Anthony Rike, | Miner, | 45 | M. | 4 | Kaska William, | Middleport, | Burned by same explosion; died on 15th. |
| | 22. | Andrew Hornjak, | Miner, | 33 | M. | 1 | Oak Hill, | Minersville, | Killed by premature explosion of a blast. |
| Nov. | 4. | Fred. Hellzaman, | Shift leader in sinking shaft. | 30 | M. | | Lytle, | Minersville, | Fatally injured by falling 25 feet down shaft; died November 25. |

TABLE No. 5.—List of Non-Fatal Accidents that Occurred in and about the Mines of the Eighth Anthracite District, for the Year ending December 31, 1897.

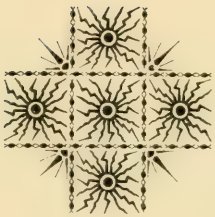
| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—Schuylkill County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Jan. 6. | Frank Higgins, | Miner, | 30 | S. | Eagle Hill, | Cumbola, | Leg broken by a fall of slate. |
| 10. | Charles Hammer, | Laborer, | 32 | S. | Phoenix Park No. 3, | Phoenix Park, | Hand severely cut by a sharp piece of coal. |
| 12. | John Biesida, | Laborer, | 30 | M. | St. Clair, | St. Clair, | Injured by a fall of rock. |
| 13. | Curtis Messner, | Miner, | 30 | M. | Otto, | Branchdale, | Foot injured by a fall of clod. |
| 16. | Patrick Coogan, | Miner, | 38 | S. | Lytle, | Minersville, | Collar bone broken by a fall of coal. |
| 18. | Patrick Quinn, | Bottom man, | 20 | S. | Marion, | St. Clair, | Leg broken by spreader chain breaking; wagons caught him. |
| 18. | Henry Thomas, | Fireman, | 18 | S. | Morea, | Morea, | Injured by falling from cable tower. |
| 18. | Mich. Lesso, | Outside laborer, | 30 | S. | Morea, | Morea, | Injured by falling from cable tower. |
| 19. | Andrew Shacoski, | Miner, | 36 | M. | Lytle, | Minersville, | Foot injured by a fall of coal. |
| 27. | John Wood, | Ashman, | 20 | S. | Pine Forest, | St. Clair, | Jaw broken by being kicked by a mule. |
| 27. | John Capcish, | Miner, | 35 | S. | Lytle, | Minersville, | Slightly burned by an explosion of gas. |
| Feb. 3. | Daniel Kominsky, | Miner, | 35 | M. | Lytle, | Minersville, | Burned by an explosion of gas. |
| 3. | Stiney Mixhus, | Laborer, | 25 | S. | Lytle, | Minersville, | Burned by an explosion of gas. |
| 9. | William Reese, | Driver, | 18 | S. | Williams, | Fishback, | Leg broken by having been caught by mine cars. |
| 9. | Chas. Betskus, | Miner, | .... | .... | Lytle, | Minersville, | Injured by flying coal from a blast. |
| 9. | Oliver Houtz, | Miner, | 24 | S. | Lincoln, | Tremont township, | Injured by falling down a manway. |
| 16. | Joseph King, | Breaker oiler, | 20 | S. | Phoenix Park No. 3, | Phoenix Park, | Top of thumb cut off by piece of machinery falling on it. |
| 24. | James McLaughlin, | Miner, | 28 | S. | L. C. & Nav. No. 11, | Rahn township, | Badly injured by shot blowing through heading while making a pump room in top rock. |
| 24. | Thomas Malarkey, | Miner, | 26 | S. | L. C. & Nav. No. 11, | Rahn township, | |
| 24. | Thos. Long, | Chargeman, | 30 | M. | L. C. & Nav. No. 11, | Rahn township, | |
| 24. | James Lewis, | Miner, | 44 | M. | L. C. & Nav. No. 11, | Rahn township, | |
| 25. | James Stamm, | Driver, | 21 | S. | Kaska William, | Middleport, | Leg broken; caught between car and mule. |
| Mar. 1. | Mich. Krewonus, | Miner, | 40 | S. | Lytle, | Minersville, | Burned by an explosion of gas. |
| 3. | Jacob Kaufman, | Miner, | 63 | M. | Phoenix Park No. 3, | Phoenix Park, | Foot injured by a fall of coal. |
| 3. | George Austy, | Miner, | 42 | S. | Lytle, | Minersville, | Foot injured by a fall of coal. |
| 5. | Joseph Deckinski, | Miner, | 23 | S. | Greenwood, | Tamaqua, | Back injured by coal rolling on him. |
| 8. | Joseph L. Thomas, | Bottom man, | 21 | S. | Williams, | Fishback, | Injured by being squeezed between mine cars and timber. |
| 15. | William Sevinski, | Miner, | 26 | S. | Eagle Hill, | Cumbola, | Leg broken by a fall of slate. |
| 16. | George Seich, | Laborer, | 38 | M. | Sebastopol, | St. Clair, | Leg broken by a fall of clay at stripping. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Mar. | 19, | Simon Ambrose, | Miner, | 21 | S. | Oak Hill, | Minersville, | Arm broken while trying to get on truck at the bottom of the slope while it was in motion. |
| | 22, | Joseph Garland, | Miner, | 30 | M. | L. C. & Nav. No. 11, | Rahn township, | Burned by an explosion of gas. |
| April | 5, | Bernard McGovern, | Miner, | 43 | M. | Otto, | Branchdale, | Eye injured by flying coal from pick. |
| | 6, | James Kilrain, | Bottom man, | 23 | S. | Otto, | Branchdale, | Back injured by lever flying while lifting a car on track. |
| | 7, | Edward Spotts, | Driver, | 23 | S. | Eagle Hill, | Cumbola, | Hip fractured by having been caught between wagons. |
| | 8, | Mich. Adenski, | Miner, | 30 | S. | Eagle Hill, | Cumbola, | Leg broken by a fall of coal. |
| | 14, | Joseph Mickey, | Miner, | 38 | M. | Lytle, | Minersville, | Injured by premature explosion of a blast. |
| | 14, | Henry Meshick, | Miner, | 30 | S. | Eagle Hill, | Cumbola, | Injured by a fall of slate. |
| | 14, | Morris Swalm, | Miner, | 25 | M. | Lincoln, | Tremont township, | Toes mashed by a fall of coal. |
| May | 4, | Peter Ludwig, | Miner, | 35 | M. | West Brookside, | Tower City, | Arm broken by a piece of slate rolling on him. |
| | 4, | Martin Cance, | Miner, | 28 | S. | Otto, | Branchdale, | Eye injured by flying coal from pick. |
| | 5, | Mich. Stumpy, | Miner, | 30 | S. | Eagle Hill, | Cumbola, | Injured by a fall of coal. |
| | 20, | Daniel Gallagher | Miner, | 30 | M. | L. C. & Nav. No. 10, | Rahn township, | Leg broken by a piece of coal rolling down chute. |
| | 24, | Andrew Popovich, | Miner, | 40 | S. | Marion, | St. Clair, | Burned by an explosion of gas. |
| | 26, | Harvey Hand, | Outside laborer, | 28 | M. | West Brookside, | Tower City, | Injured internally by being caught between railroad cars. |
| June | 2, | Stephen Kuffel, | Miner, | 28 | S. | St. Clair, | St. Clair, | Back injured by a fall of slate. |
| | 3, | Monroe Schropp, | Laborer, | 38 | M. | West Brookside, | Tower City, | Ribs fractured by being caught between buggy and top rock. |
| | 9, | Jacob McNutty, | Steel carrier, | 17 | S. | West Brookside, | Tower City, | Leg injured by being caught between wagon and rock. |
| | 11, | Patrick Farunan, | Miner, | 34 | S. | Lytle, | Minersville, | Burned by an explosion of gas. |
| | 11, | Dan McGeary, | Miner, | 36 | M. | Lytle, | Minersville, | Burned by an explosion of gas. |
| | 11, | James Smith, | Pump engineer, | 29 | M. | Lytle, | Minersville, | Knee dislocated by being caught by wagon while riding up slope. |
| | 12, | William Quinn, | Miner, | 45 | M. | Marion, | St. Clair, | Leg broken by fall of slate. |
| | 22, | William Mitchell, | Loader boss, | 36 | M. | L. C. & Nav. No. 10, | Rahn township, | Hand blown off and sight destroyed by explosion of box of caps. |
| | 23, | Barron Kasper, | Miner, | 40 | S. | Lytle, | Minersville, | Foot injured by a fall of coal. |
| | 24, | Lazarus Williams, | Chargeman, | 45 | M. | Marion, | St. Clair, | Burned by an explosion of gas. |
| | 24, | Elmer Ternes, | Rock miner, | 25 | M. | Marion, | St. Clair, | Burned by an explosion of gas. |
| | 29, | Oscar Maul, | Fireman, outside, | 28 | M. | Phoenix Park No. 3, | Phoenix Park, | Collar bone broken by having been caught between wagon and mule. |
| July | 1, | Charles Gudman, | Miner, | 29 | S. | St. Clair, | St. Clair, | Head injured by flying coal from a blast. |
| | 2, | William Begnon, | Switchboy, | 17 | .... | L. C. & Nav. No. 8, | Coaldale, | Leg broken by having been caught between mine cars. |
| | 3, | Rich. O'Neal, | Miner, | 28 | S. | Phoenix Park No. 3, | Phoenix Park, | Leg injured by a fall of coal. |
| | 6, | Dan McGe han, | Door boy, | 14 | S. | L. C. & Nav. No. 8, | Coaldale, | Finger cut off by having been caught between chute and lump of coal. |
| | 14, | Dan. McDonald, | Driver outside, | 16 | S. | L. C. & Nav. No. 10, | Rahn township, | Arm broken by falling from a mule. |
| | 15, | John Stants, | Miner, | 40 | M. | Oak Hill, | Minersville, | Injured by a fall of coal. |
| | 17, | George Sage, | Jig runner, | 14 | S. | St. Clair, | St. Clair, | Leg broken by putting it in a balance wheel to start jig. |
| | 19, | Cornelius McHugh, | Miner, | 40 | M. | L. C. & Nav. No. 10, | Rahn township, | Injured by premature explosion of a blast. |
| | 27, | Peter Winter, | Miner, | 25 | M. | Pine Forest, | St. Clair, | Leg broken by coal rolling down chute on him. |
| | 28, | Herbert Cunning, | Slate picker, | 14 | S. | L. C. & Nav. No. 8, | Coaldale, | Arm cut off; was playing with cog wheels. |

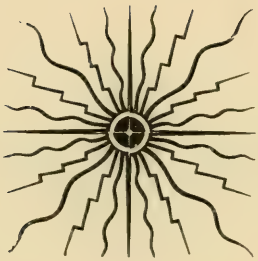
TABLE No. 5.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—Schuylkill County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| July 31. | William Hoskins, | Timberman, | 25 | S. | Albright, | Llewellyn, | Three ribs fractured by being struck by a lump of coal that rolled down the slope striking him. |
| Aug. 2. | Joseph Cook, | R pairman, | 54 | M. | Wadesville, | Wadesville, | Large toe broken by fall of slate. |
| 6. | Ibor Chokwoda, | Laborer, | 27 | S. | Williams, | Fishback, | Injured by a fall of coal. |
| 12. | George Lucas, | Laborer, | 25 | S. | Richardson, | Glen Carbon, | Injured by being caught between wagon and timber. |
| 13. | Charles Miller, | Miner, | 42 | M. | Good Spring, | Good Spring, | Burned by an explosion of gas. |
| 26. | Sam. Hubler, | Miner, | 35 | M. | Lytle, | Minersville, | Injured by premature explosion of a blast. |
| 28. | Evan Williams, | Ashman, outside, | 28 | S. | Pine Forest, | St. Clair, | Leg broken by a piece of timber rolling on him. |
| Sept. 3. | John Uhler, | Laborer, | 21 | S. | L. C. & Nav. No. 8, | Coaldale, | Leg broken by a piece of timber rolling on him. |
| 8. | Henry Houseknecht, | Slate picker, | 16 | S. | Pine Forest, | St. Clair, | Arm broken by falling down steps at breaker. |
| 17. | George Edwards, | Miner, | 34 | M. | L. C. & Nav. No. 8, | Coaldale, | Burned by an explosion of gas. |
| 17. | John P. O'Donnell, | Miner, | 50 | M. | L. C. & Nav. No. 8, | Coaldale, | Burned by an explosion of gas. |
| 22. | Peter Monahan, | Fuel driver, outside, | 55 | M. | Marion, | St. Clair, | Arm broken by being struck by dumper. |
| 24. | Mich. Yelski, | Laborer, | 48 | M. | Little Diamond, | Minersville, | Hand mashed by being caught between bumpers of cars. |
| 28. | Tony Smith, | Laborer, | 25 | S. | St. Clair, | St. Clair, | Arm broken by sledge while holding jumper. |
| Oct. 11. | Andro Gratz, | Laborer, | 30 | M. | L. C. & Nav. No. 8, | Coaldale, | Leg and hands badly burned by dynamite burning in his bootleg. |
| 14. | Peter Paul, | Miner, | 47 | M. | Kaska William, | Middleport, | Burned by an explosion of gas. |
| 14. | Patrick Doyle, | Miner, | 32 | S. | Kaska William, | Middleport, | Burned by an explosion of gas. |
| 21. | Owen Boyle, | Miner, | 58 | M. | L. C. & Nav. No. 8, | Coaldale, | Back injured by a fall of coal. |
| 22. | John McGeever, | Miner, | 25 | M. | West Brookside, | Tower City, | Injured by a fall of slate. |
| 27. | Andrew P. Smith, | Miner, | 30 | S. | Lytle, | Minersville, | Leg broken by a fall of coal. |
| 28. | Mich. Filer, | Laborer, | 27 | S. | Morea, | Morea, | Burned by an explosion of gas. |
| 29. | Andrew Kosack, | Miner, | 37 | S. | St. Clair, | St. Clair, | Injured by a fall of rock. |
| 30. | John Catilah, | Miner, | 35 | S. | St. Clair, | St. Clair, | Injured by a fall of coal. |
| Nov. 1. | Arthur Evans, | Driver, | 17 | S. | St. Clair, | St. Clair, | Leg broken by falling under moving cars. |
| 4. | Mich. Miller, | Miner, | 34 | S. | West Lehigh, | Tamaqua, | Leg broken by a fall of coal. |
| 6. | William Thomas, | Repairman, | 38 | M. | Williams, | Fishback, | Leg broken by being struck by flying coal from a blast. |
| 6. | John J. Maley, | Miner, | 27 | S. | Oak Hill, | Minersville, | Injured by a fall of coal. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Nov. | 8. | Paul Godbut, | Miner, | 23 | S. | Marion, | St. Clair, | Burned by an explosion of gas. |
| | 8. | Anthony Godlitas, | Miner, | 37 | S. | Marion, | St. Clair, | Burned by an explosion of gas. |
| | 9. | Robt. Davis, | Miner, | 57 | M. | St. Clair, | St. Clair, | Hip broken by a fall of coal. |
| | 9. | Martin Sisco, | Miner, | 37 | M. | Otto, | Branchdale, | Severely injured by being caught by an outburst of gas. |
| | 14. | Charles Emanuel, | Engineer, outside, | 26 | M. | Lytle, | Minersville, | Arm broken by being caught by machinery while oiling. |
| Dec. | 3. | Irvin Wolfe, | Laborer, | 24 | M. | West Brookside, | Tower City. | Leg broken by a fall of coal. |
| | 7. | Edward O. Williams, | Fire boss. | 34 | M. | Williams, | Fishback, | Burned by an explosion of gas. |
| | 7. | Mich. Ravok, | Miner, | 29 | M. | Williams, | Fishback, | Burned by an explosion of gas. |
| | 7. | John Ravok, | Miner, | 27 | S. | Williams, | Fishback, | Burned by an explosion of gas. |
| | 10. | Frank Kamuth, | Laborer, | 26 | S. | Pine Hill, | Minersville, | Leg crushed between mine cars. |
| | 10. | Peter Poltnavage, | Laborer, | 22 | S. | Lytle, | Minersville, | Injured by a fall of coal. |
| | 16. | John Harkins, | Miner, | 24 | M. | Marion, | St. Clair, | Severely injured by premature explosion of blast. |
| | 21. | Mich. Meshick, | Miner, | 47 | M. | Morea, | Morea, | Leg broken by a fall of coal. |
| | 27. | Dan. Harkins, | Carpenter, | 23 | S. | Silver Creek, | Silver Creek, | Leg and two ribs broken by having been struck by mine car at bottom of shaft. |
| | 27. | Amos Bixler, | Miner, | 54 | M. | Brookside, | Tower City, | Burned by an explosion of gas. |
| | 27. | Robt. Bressler, | Miner, | 39 | M. | Brookside, | Tower City, | Burned by an explosion of gas. |
| | 29. | Geo. Hudson, | Bottom man, | 20 | S. | Morea, | Morea, | Leg broken by falling under moving mine car. |
| | 30. | Witzah Mazugah, | Miner, | 42 | S. | St. Clair, | St. Clair, | Injured by a fall of rock. |
| | 30. | John Matzack, | Laborer, | 32 | M. | St. Clair, | St. Clair, | Severely injured by fall of rock. |



# BITUMINOUS MINE DISTRICTS.



# FIRST BITUMINOUS DISTRICT.

(ALLEGHENY, FAYETTE, GREENE, WASHINGTON AND WESTMORELAND COUNTIES.)

---

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: In accordance with Article X, section 11, of an act, entitled "An act relating to bituminous coal mines, and providing for the lives, health, safety and welfare of persons employed therein," I hereby present my annual report as Inspector of the First bituminous coal district for the year ending December 31, 1897.

The coal production, as reported to this office, was 6,459,200 tons, being a decrease of 223,871 tons from that of the year previous.

Relative to the number of fatal and non-fatal accidents, I am pleased to say that the former show a decrease of 22 and the latter 18 from that of the year 1896. Twelve wives were made widows and 30 children fatherless by the fatal accidents.

Some of the annual reports sent to this office by the operators are prolific of inaccuracies, and cause no end of trouble to this department, and, as a consequence, the report is often delayed, through the carelessness—I do not wish to use a harsher word—of those who compile them, for I have to correct them as best I can, and this, as is evident, is often mere guess work. The following is a verbatim copy of part of a report received: "Number of miners, 100; number of miners' laborers, 20; drivers and runner—7 drivers, 2 runners; door boys and helpers, 1; total inside, 110; outside foreman, 1; blacksmith and carpenters, 1; engineers and firemen, 1; superintendents, bookkeepers and clerks, 1; total outside, 7; grand total, inside and outside, 125."

The usual tables will be found in the body of this report, together with a description of the fatal and non-fatal accidents that occurred in the district during the year.

## Mining Statistics.

| | |
|---|---|
| Number of mines in the district, | 76 |
| Number of mines operated during the year, | 68 |
| Number of tons, run of mine, of coal mined, | 6,459,200 |
| Number of tons of coal shipped by railroad, | 2,488,409 |
| Number of tons of coal shipped by river, | 3,901,592 |
| Quantity of coal, in tons, used for steam and heat in and about the mines, | 39,668 |
| Sold to local trade and used by employes, | 23,152 |
| Number of days worked, | 10,294 |
| Number of persons employed, | 10,665 |
| Number of kegs of powder used, | 19,308 |
| Number of pounds of dynamite used, | 897 |
| Number of steam boilers, | 164 |
| Number of horses and mules, | 691 |
| Number of mine locomotives, | 5 |
| Number of coke ovens, | 6 |
| Number of fatal accidents, | 22 |
| Number of non-fatal accidents, | 89 |
| Number of tons of coal produced per each fatal accident, | 293,600 |
| Tons of coal produced per each non-fatal accident, | 72,575 |
| Number of wives made widows by fatal accidents, | 12 |
| Number of children made fatherless, | 30 |
| Number of persons employed per each fatal accident, | 484 |
| Number of persons employed per each non-fatal accident, | 119 |

Table Showing the causes of Fatal and Non-Fatal Accidents During the Year 1897.

| | Fatal. | Non-fatal. |
|---|---|---|
| By falls of slate, | 8 | 39 |
| By fall of coal and slate, | 1 | .. |
| By fall of roof coal, | 2 | 4 |
| By fall of coal, | 5 | 3 |
| By cars, | 4 | 19 |
| By being run over by dilly trips, | 2 | .. |
| By dilly trips, | .. | 2 |
| By mining machines, | .. | 2 |
| By fall of "black-jack," | .. | 1 |
| By premature blast, | .. | 1 |
| Miscellaneous, | .. | 18 |
| Total, | 22 | 89 |

Among the improvements made at the mines of this district during the year, was the erection of ventilating fans at the following mines: Apollo (18-inch), Cleveland (18-inch) and a six foot Murphy at the Umpire.

A description of each mine in the district is also given.

All of which is respectfully submitted,

Yours very truly,

HENRY LOUTTIT,
Inspector.

Monongahela, Pa., February 14, 1898.

## Mines on the Belle Vernon Division of the Pittsburgh and Lake Erie Railroad.

North Webster.—While the drainage of this mine was satisfactory, the ventilation, in parts of the same, required improvement. This was particularly the case on an entry known as No. 1. Here there were twenty-two persons at work and not a visible movement of air on the entry proper. There were 16,200 cubic feet of air entering the mine, but this was cut up into so many divisions that in some parts it would not move the anemometer, and to add to this, powder smoke was permeating the atmosphere of the mine to a great extent. I gave instructions that the law in regard to ventilation must be complied with. This, I am informed, has been done.

Cleveland.—In the early part of the year the ventilation was very unsatisfactory, in a greater part of the mine. This was caused by the furnace not being of sufficient power to move the quantity of air required. Being a machine mine, much powder was used and this was also a factor in making matters worse. On one of my visits, I ordered the vacating of some eight places on an entry known as the "Lost" (this was well named). I gave the operators peremptory orders to comply with the law without further delay. This resulted in the erection of an 18-foot ventilating fan. At the time of my last visit, the mine was in fair condition. The outlet air measurement showed 63,000 cubic feet.

Arnold.—At each visit to this mine it was found in a satisfactory condition. An electric motor was among the improvements made during the year.

Shepplar.—Cubic feet of air at outlet, 23,510. Condition of ventilation, fair. Drainage, in parts of the mine, required improvement. Owing to the location of this mine being near the axis of the Waynesburg anticlinal, it is nearly an impossibility to perfect the drainage; some improvement could be made, however. Suggestions to this effect were given.

Manown.—Air measurement, as shown by the instrument, 36,000

cubic feet at inlet. Additional air measurements were taken at the outlet and entries 6, 18, 22, 26, 28, 31 and 33. General condition of mine, fair.

Mines on the Pittsburgh and Wheeling Division of the B. and O. R. R.

Nottingham.—This mine has, for some time, given the Inspector a great deal of annoyance on account of defective ventilation and drainage. It seems that the management made no earnest effort to get the mine into a condition such as the law requires. When their attention was called to the matter, the promises that they would do better in the future and remove cause of complaint were numerous, but, on the next visit, I would find nearly the same condition of affairs existing, and a repetition, in the promise line, would be given. Seeing that only harsh measures would avail in this case, I entered suit against Operator Henry Florsheim and Superintendent-Mine Foreman James Kerr, for not providing the necessary ventilation and not keeping the mine properly drained. Previous to the day set for the hearing, Mr. Kerr called at this office and requested that the case be withdrawn and that they would immediately make the necessary arrangements to comply with the act relating to bituminous coal mines, their intention being to sink a shaft near the extreme end of the workings as soon as their eng'neer could locate the same. Subsequently, this was abandoned and they now propose to erect a fan. I noticed that blasting was allowed to be done at any time by the employes, and this kept the air in the mine mixed with powder smoke; to remedy this, a blasting card was put up, prohibiting blasting until 4 o'clock P. M. This had a good effect on the ventilation, as the quantity of air in circulation was much purer than previous to the stopping of indiscriminate blasting.

Germania.—On my last visit to this mine, the ventilation and drainage required improvement. A notice was given to the management to have the mine put in such a condition as to comply with the law. A short time after this, work in the mine ceased and it has not been operated since.

Anderson.—Not in operation when last visit was made.

Snowden.—At my last visit, the general condition of ventilation was fair, but the drainage, in parts of the mine, required improvement. The outlet air measurement, as shown by the instrument, was 36,000 cubic feet. Additional air measurements were taken at the inlet and at entries 4, 7, 9, 11 and also at face, and at cut-throughs on entries 1, 2, 7 and 8. Entries being driven, 8.

Eclipse.—This mine, when last examined, was, in a general way, satisfactory.

Gastonville No. 1.—This mine, as regards ventilation, was in a very unsatisfactory condition. Some of the rooms had no cut-throughs;

the absence of check doors was also noticeable. On one of the entries, four places were being worked in advance of the air current; these I ordered stopped until properly ventilated. I notified the company operating the mine to comply with the act as regards ventilation.

Gastonville No. 2.—Parts of this mine, as regards ventilation, was also a matter of complaint. A new company has taken charge of these mines, and I have reason to believe they will be put in proper condition without delay.

Hackett.—Owing to the condition of this mine and the neglect of the parties in charge to comply with the law as regards ventilation, I entered suit against Superintendent J. E. Boyle and Mine Foreman Robert Cochran under the act of May 15, 1893, relating to bituminous coal mines, but before this reached the proper authorities, the suit was held in abeyance on the promise being given that they would immediately comply with the act. A shaft has been sunk and a fire-basket placed in position which has materially increased the ventilation.

Mines Located on the Monongahela Division of the Pennsylvania Railway.

Shoenberger.—This is a new drift opening, located about one-half mile north of Baird station. Ground was broken for the plant on the 8th of April, 1897, under the immediate direction of Mr. A. G. Mitchell, C. & M. E., of Monongahela, Pa. The mine consists of two main entries driven south 20 degrees east, and directly toward the center of a field of coal of 447 acres. These entries have a pillar of coal of forty feet between them—that of the butts being thirty-two feet. A line air course—which can also be used as a water way—is being driven on the west side of the coal field. The butt headings on the right of the mains will intersect this as they are driven. Some twelve hundred feet from mine entrance, near tipple, a ravine will be met, which will nearly separate the coal field, and as the main body of coal lays on the other side, the main entries will, as a necessity, cross it. The workings at present are in the first hill, the ventilation being produced by a "grate surface," which is placed at the bottom of a shaft 20 feet deep and 6 feet in diameter—the shaft being capped by a stack 18 feet in height. The mine is opened on the double entry system. The first room in each butt heading is being driven parallel with the main headings so as to leave a uniform pillar of fifty feet between them. All rooms (except the first one on each entry) are opened thirty-five feet from center to center—the road being on one side. The rooms are twenty feet wide, leaving a pillar of fifteen feet to be withdrawn. The outside improvements at present consist of three railroad sidings with frame tipple, the latter being covered by a building 28 feet wide and 113 feet long. The tipple is equipped with all the modern improvements. The inside workings are under the supervision of W. J. Mollison.

Courtney.—This mine consists of two butt and six face headings. While making an examination, I found that they had cut through into the abandoned Garfield mine and black-damp from the latter was becoming mixed with the ventilation of the former mine to such an extent that it was plainly visible on the naked light. The place where the holing was made has since been closed by a stopping.

Allen.—General condition of drainage, satisfactory. Ventilation, in parts of the mine, required improvement. Two of the entries, designated as Nos. 3 and 4 had no visible movement of the air. On the former entry, eight persons were at work; on the latter, two. If the air had been properly distributed there would have been no cause for complaint. The air current was continuous. The number of persons at work being above the maximum number allowed by law, notice was given the operator to comply with the act of May 15, 1893, relating to bituminous coal mines. The mine foreman reported to this office that the cause of complaint had been removed.

Charleroi.—On the date of my last visit, the mine was in a satisfactory condition.

Acme.—Mine was found in fair condition when last examined.

Fidelity.—The condition of this mine, at the time of my last visit, was satisfactory.

## Greene County Mines.

These mines, for a number of years, have not employed a sufficient number of persons to come under the jurisdiction of this office.

## Maxwell Mine.

This mine is located on Maple Creek, near the borough of Charleroi, and employs but from six to nine men. At times the number of persons at work exceeded this, but not of late.

## Mines on the Monongahela River.

Coal Centre.—This mine was in fair condition when last inspected.

Cedar Hill.—This mine is idle at present. When in operation it does not, or at least has not for some time, employed a sufficient number of persons to bring it under the jurisdiction of this office.

Beaver.—This mine has been abandoned.

Ivill.—While the drainage was satisfactory, the ventilation, in parts of the mine, required improvement. The management, upon being notified of the condition of the mine as regards ventilation, made such arrangements as were necessary to increase the quantity of air to the amount required by law.

Champion.—This mine was in fair condition when I made my last vist.

Banner, Cliff and Coal Bluff.—These mines were not in operation at the time of my last visit. At present the plants are in the hands of a receiver.

Riverville (formerly Wright's Bar) Crowthers and Fox.—Each of these mines was in a fair condition when last examined.

Blyth.—On my last examination of this mine, I found the workings in a very unsatisfactory condition, in parts, as regards ventilation. The outlet air measurement showed 36,800 cubic feet, but on some of the entries the anemometer would scarcely register. The air is split into two divisions, one of which passes through a "return," which is almost closed up by water which has accumulated. They have decided to blast down the roof in this "return," so as to make a larger area. An overcast was made in this mine, but I ordered its removal on account of it not having been in conformity with the law. A portion of the mine has a shaly roof, which gives the management great annoyance. A squeeze is also giving them trouble, one entry being already abandoned on account of it, and another is being watched closely.

New Eagle.—General condition of ventilation and drainage, fair.

Climax.—Part of this mine is temporarily abandoned on account of water. The part that is being operated was found in fair condition.

Abe Hays, Fulton, Stonesburg, Vesta No. 3 and Stockdale.—These mines were idle during the entire year. The latter mine is, I am of the opinion, practically abandoned.

Old Eagle.—Outlet air measurement, as shown by the instrument, 55,000 cubic feet. Measurements were also taken in entries 28, 30, Swamp, Sweeney and "Little Sweeny." Condition of mine, fair.

Knob.—General condition of mine, fair. Air measurements were taken in entries 18, 20, 22, 23, 24, 25, main and No. 2 main, and cut-throughs on entries 22 and 23.

Caledonia.—Condition of drainage, in a general, way, satisfactory. Ventilation, in parts of the mine, required improvement.

Cincinnati.—Mine not in operation at the time of my last visit.

Eclipse.—General condition, fair. The air current of this mine is split into four division, the "return" of each being sent into the main "return" by overcasts built across the main entry. The main "return" is not in very good condition on account of being somewhat obstructed by falls. To remedy this, they are having two entries driven to a point where a shaft will be sunk to intersect them. On visiting one of the rooms, I found the air so mixed with black-damp, which was escaping from the old workings, the room had holed into, that it was plainly visible on the naked light. I suggested that the place be vacated unless it should be properly ventilated.

Mongah.—This mine was found in fair condition on last inspection. Air measurements were taken at inlets, entries 5, 9, 12, main, gob and face. The inlet measurement showed 20,506 cubic feet.

Clipper.—The ventilation and drainage, in parts of the mine, required improvement.

Christinia.—At the time of my last general examination of this mine, I found it in fair condition, both as regards ventilation and drainage. The person in charge of the inside workings at the time of this visit was not a mine foreman according to law, as he did not hold a certificate of competency, as required by section 1, article VI of the act relating to bituminous coal mines. I notified the operator, Mr. C. F. Goldstrohm, that it was necessary for the law to be complied with, in this particular, without delay, but it had very little effect, for, at the time of my next visit, the same person was in charge. Suit was then brought against the operator to compel him to comply with section and article above named. Previous to the hearing, however, Mr. Goldstrohm informed me that as the mine was about to pass out of his hands, he would ask for a withdrawal of the suit and would pay the costs. This was granted. Later, Mr. Goldstrohm employed a legalized mine foreman and operations at the mine were resumed.

Catsburg.—At each visit to this mine, it was found in fair condition.

Gallatin, formerly Watson.—On my last visit, I found the ventilation and drainage in fair condition. From the time the mine suspended operations under the former operators, until the new firm took charge, an entry, which was used as a second opening, fell in, and when I visited the mine I found that they were not complying with the act, as regards means of egress. I notified the company to comply with the law relating to the openings. They have since put a stairway in a shaft which is located near the rear of the workings. This will be used in cases of emergency until the completion of a slope, which they intend to connect with the mine.

Hilldale.—When last visit was made, the mine was not in active operation. A few persons were at work, making preparations to resume in full.

Black Diamond, Vigilant and Stony Hill.—Each of these mines, at the time of my last visit was found in fair condition.

Washington.—When last examined they were employing 66 miners, 4 boys, 5 drivers and 3 other persons. The inlet air measurement, as shown by the instrument, was 25,940 cubic feet. Outlet air measurement, 27,270 cubic feet. The additional air measurements taken were 2,400 and 3,360 cubic feet on entries 6 and 7, respectively. Condition of mine, as regards ventilation and drainage, was, in parts, unsatisfactory.

Snow Hill.—In operation 178 days during the year. Total number of persons employed, 165. When last examined, the general condition was satisfactory.

Albany.—This mine was, as regards ventilation and drainage, in a satisfactory condition.

There are two noteworthy features in connection with the working of this mine, viz: The Haulage and Electric Mining Plant. The Haulage is an endless line system, and while the engines used for this purpose are not claimed to be of the most modern type, they are capable of doing their work in an efficient manner—this being largely due to their arrangement. The two cylinders are connected to one main shaft; on this shaft is a strong pinion wheel which works in a modern clutch gear; by this arrangement the engineer is enabled to start and stop the load in the easiest possible manner. The sheaves, or drums, are 6 feet and 4 feet in diameter, respectively; the former is driven from a counter shaft, which is driven by the friction clutch gear. Owing to this arrangement, it is not necessary to start or stop the engines either to move or stop the load, no matter in what position the load is when the signal is given to the engineer. The line, or cable is of one and one-eighth inches in diameter and made of the best ploughshare steel. The cable is threaded on a large driving sheave in grooves cut out and then around the small sheave and forms a figure eight; it then passes around the "return" wheels, which are five feet in diameter, then enters the mine by the yay of the main entry, which, being driven fifteen feet wide, gives ample room for two tracks, viz empty and full, side by side. After leading down the main entry a distance of 2,150 feet, the empty line departs up a butt entry and travels in the latter for a distance of 1,200 feet, then through a "cut-through" down the parallel butt with the loads from that district. By this arrangement, it practically makes two distinct districts to haul from, viz: at head of butts and on main entry. The cars were attached singly by means of a grip. The haulage was installed originally for an output of 600 mine cars per day, with this in view, the line was arranged to travel at a rate of sixty feet per minute with a loaded car attached every sixty feet. While this method gave satisfactory results, the capacity could be greatly increased by simply attaching the cars nearer each other and increasing the speed of the line. The grade against the load for a distance of 2,150 feet is of two feet two inches per 100; the grade on the other 1,200 feet is two feet per 100 in favor of the load. This system will compare favorably with the modern systems of tail line haulage. The electric signal system in connection with this haulage is, if not actually as complete as some, thoroughly practical. The battery and one bell is placed near the engines and a bell is placed at each station, with three wires extending along the entire system. By this system, when a signal is given from any station or even on any part of the line, the same signal is heard at all other points at the same time. An electric plant has been recently installed for the purpose of cutting coal by ma-

chinery. The following is a brief description of it: The boilers, of which there are two, are of the Erie pattern and were built by the Union Iron Works, of Erie, Pa., are 18 feet long and 6 feet in diameter and each contains 78 three-inch diameter tubes. The boilers rest on a firm foundation of brick and stone. Each boiler is equipped with a consolidated nickel seated "pop" safety valve, regulated to 100 pounds pressure, and they are fed by two "Battle Creek," pumps with an improved automatic injector in reserve. It is not necessary to use both pumps, as one is capable of supplying both boilers and is so arranged that one or both pumps will feed either boiler or the injector can be applied likewise. While both boilers are generally used to furnish steam for the electric and haulage plants, also for the ventilating fan and mine pump, they are so arranged that should anything happen to one, it can at once be detached, and the other is capable of furnishing power for service. The water supply is taken from tanks by the pumps or injector and forced through two enclosed heaters, the exhaust from the power engine being utilized to generate heat for that purpose, and it is capable of raising the temperature of the water from its normal condition in the tanks to 210 degrees Fahrenheit before entering the boilers. The power house is a brick structure 20x40 feet inside, which is neatly ceiled and the interior well finished; the floor is of concrete, which greatly reduces the risk from fire. The generator, or dynamo, is a 100 K. W., of 400 amperes, and is of the Westinghouse type. The switchboard is of polished granite and is furnished with Weston's ammeter and volt meter recording instruments, with safety swith of the most improved pattern. The power engine is 16x24, and furnished with an automatic governor and cut-off, and is fed through a Strattons steam separator and run at a speed of 220 revolutions per minute. This is a 250 volt plant and runs five seven foot mining machines of the chain type, built by Morgan, Gardner & Co., of Chicago.

Anchor.—On my last examination of this mine, I found the general condition fair.

Fayette City.—In operation 209 days during the year. Total number of persons employed 228. When last visited the ventilation was fair, but the drainage, in parts of the mine, was unsatisfactory.

Amity.—On my last visit there were employed inside 160 miners; 15 drivers and 6 other persons. At outlet the instrument showed a velocity of 190 and 800 feet respectively. Sectional areas 35 and 48 square feet. The workings are in two parts, namely, Old and New Hill; in the latter, nine persons were at work. I found the condition of the New Hill, as regards ventilation, not up to the legal requirements. As a remedy, they were driving an entry to connect with another in the Old Hill; this had yet about fourteen yards to be

driven at the time of my inspection. The general condition of the other part of the workings was satisfactory.

Walton, Upper and Lower Mines.—The general condition of the ventilation and drainage of the former mine, was fair, but in the latter, the air currents were not up to the quantity required by the act relating to bituminous coal mines.

Ella.—In operation 201 days during the year. Total number of persons employed in and about the mine, 204. General condition of the workings, fair.

Allequippa.—Persons employed on my last visit, 182, classified as follows: 160 miners, 15 boys, 8 drivers, 6 day hands and 3 trappers. Entries being driven, 9 butt and 2 face. Instrument velocity at outlets, 500 and 600 feet, respectively. Sectional area 45 and 55 square feet. Condition of mine, fair.

Crescent.—On my last general examination, the ventilation and drainage required improvement.

Tremont.—The general condition of the workings of this mine, when last visit was made, was fair.

Chamouni.—The ventilation and drainage, in parts of the mine, were inadequate. Persons employed, 216. Air measurements taken at inlets, outlets and entries 8, 10, 11 and 17. The instrument would not register on entries Nos. 14 and 15. On entry 13, four rooms caved in, making a depression on the surface of 720 square feet, which broke the strata so as to admit a large quantity of water into the mine.

Fawcett.—Among the improvements made at this mine during the year was the installation of an electric mining plant, which, among other things, consisted of two tubular boilers, 60 inches by 14 feet; one 95 horse power automatic Skinner engine, one 65 horse power commercial generator and three improved chain breast mining machines of the Jeffrey pattern. To facilitate the haulage, a tail rope system has been installed. General condition of mine, satisfactory.

Bunola.—On each visit to this mine during the year, I found cause of complaint in regard to the ventilation and other matters pertaining to the health and safety of the persons employed therein. On one of my examinations, the ventilation was so defective that I could not get the instrument to register in any part of the workings, with the exception of the inlet and outlet; the check doors were not in place nor no shelter hole made for the rapper boy, who was stationed at one of the doors; the drainage and roads also needed attention. I notified the management in regard to the condition of the mine, and requested them to remove the cause of complaint, but it seems to have had very little effect, for when the mine was visited a short time later, nearly the same condition of things existed. Under those circumstances I saw no alternative but to enter suit against R. C. Crawford,

general manager of the Bunola Mining Company, Joseph Stone, Superintendent, and William Penn, mine foreman, for non-compliance with the act of May 15, 1893, relating to bituminous coal mines. Previous to the time named for the hearing, a representative of the company called at my office and stated that arrangements, to comply with the law, would be made immediately. With this understanding the suit was held in abeyance. Total number of persons employed, on my last visit, 125; cubic feet of air at the outlet, as shown by the instrument, 21,150.

Beaumont.—On my last general examination of this mine, the ventilation and drainage, in parts of the mine, were inadequate.

Camden.—This mine was not in operation when I made my last visit.

Little Alps.—In operation 230 days during the year. Total number of persons employed, on my last visit, 38. The inlet velocity of air as shown by the instrument, was 350; sectional area, 49 square feet. The ventilation at the working faces was inadequate, but a new furnace had just been completed which should, if properly attended to, remove all cause of complaint as regards the air currents.

Rock Run.—This mine consists of eleven butt and two face headings. Total number of persons employed inside, 125, classified as follows: 105 miners, 5 boys, 10 drivers, 3 day men and 2 trappers. Outlet air measurement, 25,200 cubic feet. While the drainage of this mine was satisfactory, the ventilation, in parts of the mine, was not up to the legal requirements.

Milesville.—In fair condition when last examined.

Rostraver.—When last inspected the ventilation and drainage, in parts of the mine, required improvement. I directed that the act relating to bituminous coal mines be complied with.

Buffalo.—General condition of ventilation, fair. The second opening for this mine is a shaft located on the left side of the present workings and quite a distance from them. The passageway is not in the best condition. None of the employes make use of it at the present time, as the other route is nearer their homes. The officials of the mine make frquent visits to the shaft so as to keep it in such a condition that it can be made use of in cases of emergency.

Apollo.—At the time of my last visit, this mine was idle, but I found the workings in fairly good condition. During the year a ventilating fan has been placed in position, which has greatly increased the ventilation in comparison with that produced by the furnace. At present the fan is working at a great disadvantage owing to the position of the air course leading from it. To add to this, a door which is located at the main entrance to the mine has, as a necessity, to be opened so often to allow the trips to pass through, that it cuts off the air from the mine to a great extent. I have suggested to the management that an entry be driven parallel with the main entry to

intersect one of the cross entries; this would not only make a direct route for the air current for quite a distance, but would also dispense with the door and its consequent annoyance.

Vesta Nos. 1 and 2.—These mines are, at the present time, practically one, as all the coal produced in them, except one entry, is run over the former's tipple. On my last visit they were employing 14 machine men, 138 loaders, 14 drivers and 21 other persons. The condition of these mines, as regards drainage, is fair, but in parts of the mine the ventilation was not up to the legal requirements, owing to the air not being properly distributed. Cubic feet of air entering the mine, 36,720.

Little Redstone.—In operation 185 days during the year. Cubic feet of air at inlet, when last visit was made, 32,880; additional air measurements were taken on entries 8, 9, 12, 14, 17 and cut-throughs on entries 7 and 18, and at outlet. With the exception of a few places where the ventilation was inadequate, the mine was in fair condition.

Umpire.—In fair condition when last visited.

## Description of Fatal Accidents.

Alvin Sheaffer, German, a miner, aged 34 years, was instantly killed January 24, in Washington mine, by a fall of slate. The deceased and George Worherley worked together in a twelve "foot" place that they were driving from entry 4 to 5. At the time of the accident, Sheaffer was taking out posts from under the slate, when slate that measured fourteen feet long, twelve feet wide and eleven inches thick fell, part of which struck him, resulting as above stated. Sheaffer left a wife and three children.

On February 2, at Acme mine, John Fernell, Hungarian, miner, aged 20 years, single, was instantly killed by a fall of coal and slate, while "bearing in" under a "half shearing."

Edward Clemmus, American, driver, aged 18 years, received such injuries, by being caught between cars and coal pillar, that he died some eight hours after. The deceased was moving a trip of three loaded cars along entry No. 11 toward the double parting, and when near the entrance to the above entry, the trapper boy, who attends a door which is located between entries 11 and 12 called Clemmus to "stop," but instead of doing so he continued to come on. By this time, another driver, William Wilson, was on the main entry, also on the way towards the double parting, with a trip of two cars. The speed of both trips was such that they reached the parting of entry 11 at the same time; this resulted in a collision. The deceased was on the front end of the first car of his trip and, seeing that the trips would come together, he jumped off. Just as he did so, the car was thrown from the track, catching Clemmus between it and the entry pillar, re-

sulting as above stated. Clemmus had been warned about moving his trip on to the main entry, without first being notified by the trapper that the track was clear. Only a few days before the accident he had a narrow escape from being caught in the same way. This accident occured at Walton's Upper Mine on February 17th.

On March 2nd, Frederick Reese, American, a miner aged 57 years was injured by a fall of slate in room 3, entry 11, Chamouni mine, and died about ten hours after. The deceased, Richard Thompson and Edward Grieze, worked together and a short time before Reese received his injuries a shot had been fired in the "half shearing;" some coal from the shot struck a post which had been under the slate and dislodged it. Thompson informed the writer that he asked the deceased to put the post up again, but he made reply that "the slate would stay up a year." He then started to "bear in" on the corner of the butt, but had not done much until the slate fell, resulting as above stated. I cannot refrain from stating that this accident was due, in great measure, to carelessness, and it could have been averted if but ordinary care had been exercised. Reese left a wife and three children.

Joseph Perkins, English, a miner was fatally injured at the Amity mine, March 26, by having been caught by a loaded slate car while riding out of the mine. The deceased had finished his day's work and got on a trip of cars to ride out. On this trip, besides the coal cars was one of slate; between this and on the bumpers of a coal car, the deceased rode. When near the mine entrance the driver cut the slate loose from the trip so as to let it run on to a switch used for a dirt dump; this was immediately followed by Perkins falling off the car on which he was riding, and before he could recover himself, the slate car was on him. The driver, George Grooms, informed the writer that he saw Perkins slip off, and he tried to stop the slate car before it reached Perkins, but could not. Perkins was 63 years of age and leaves a widow.

By a fall of slate in Coal Bluff mine, on April 1, Alfred Ferrina, French, miner, was instantly killed. Deceased was 53 years of age and a widower.

John Gallagher, Irish, a miner aged 44 years, was fatally injured April 9, in Chamouni mine, by slate discharging posts and striking him, resulting in his death some four days after. Gallagher left a wife and three children.

On April 22, Herman Stanbaugh, German, miner, aged 55 years, was so badly injured at Snowden mine, by a fall of roof coal that death resulted some seventy-two hours after. Deceased left a wife and three children.

John Taylor, American, stable boss, aged 32 years, was instantly killed on Apollo mine tipple by having been caught by a car. A full

trip of cars had been brought out of the mine by the dilly, and a car of coal being required for the engine house, the last car was cut off the trip, to be used at that place. The dilly rider suggested that the car be pushed to the engine house, but Taylor said "it can be done much easier by the engine." He then attached the line to the wagon and signalled the engineer to start the engine; this was done, the deceased walking in front of the car. He had not proceeded far until he was seen to fall; the engine was stopped immediately, but not in time to prevent the car from running on him. An inquest was held and a verdict of accidental death rendered. Taylor left a widow but no children. This accident occurred on May 4.

On May 11, Joseph Scheplick, Polander, miner, aged 30 years, was instantly killed by a fall of slate in Caledonia mine. The deceased worked in room 47, entry 5. At the time of the accident he was knocking coal. The slate that fell on him measured seven feet long, four feet wide and about twelve inches thick, and formed what is known in mining parlance as a "pot." The body of Scheplick was entirely covered by the slate which had to be broken before the body could be gotten out. Deceased left a widow but no children.

Stephen Balaback, Hungarian, miner, aged 28 years, was instantly killed by a fall of slate in Anchor mine on May 12. This accident occurred in room 18, entry 9. At the time of the accident, he was filling a car from one side of the room. On examining the slate, I found slips with the angle of fracture against safety. Balaback left a widow and two children.

John Galbasine, Italian, a miner, was instantly killed by being run over by the dilly trip in Ivill mine on May 24. The deceased was on his way out of the mine, and a trip of forty empty cars was standing near the main entrance, and when the deceased reached them he, it is supposed, thought that they were going to be pulled out and put his dinner bucket and three picks, which he was carrying, into one of the cars. The trip started inward and he then made an attempt to remove the bucket and picks. During this time he was walking along the roadside, and before he realized his danger, he reached a narrow place and was thrown under the cars with result as above stated. The deceased was 37 years of age and single.

John Leckman, Slav, a miner, aged 27 years and single, was injured in Gastonville No. 1 mine, by a fall of slate. This accident occurred on May 26, and at the time it was not considered a serious case, but a fewdays after, he made a trip to Carnegie to consult a physician, and, upon reaching the Gastonville station, on his return home, he walked to his boarding house; this, and other indiscretions on his part, caused his injuries to take a dangerous turn, which resulted in his death on July 2.

On June 5, Edward VanHorn, American, aged 23 years, a scraper

after machines, was instantly killed in Fayette City mine by a fall of coal. This accident occurred in room 52, entry 11. Deceased and Edward Axton worked together, and while running a mining machine at the face of room, a "slab" of coal twelve feet long, one foot thick and about six feet wide fell, striking VanHorn, with result as above stated. At the time of the accident there were two other miners, Abraham Timm and Alexander McFarland, in the room waiting for VanHorn and Axton to finish some work that they were at, so that they might go home together. After an examination of the place, and from the evidence produced, it seemed that this accident was unavoidable. VanHorn was a single man.

At Mongah mine, June 12, Edward Roy, American, miner, aged 28 years and single, was instantly killed by a fall of roof coal. The deceased worked in room 14, on entry 12, but the accident occurred in room 15, in which John Taylor and Moses Reed were employed. Roy had gone into this room for the purpose of partaking of his lunch, and while doing so the roof coal fell, striking him with result as stated above.

Thomas Booth, American, driver, was instantly killed in Hackett mine, June 16, by being caught by his trip. The deceased was on entry 7, on his way out to the tipple with a trip of three full cars, and when near room 7 of the above entry, he was, in some unknown manner, thrown under the first car. The electric lines pass up this entry, and it was suggested that he might have come in contact with them and been thrown under the car. The theory was also advanced that he might have been urging his mule to a faster gait and tripped, and, before he could recover himself, the car was on him. From the position in which the body was found and other circumstances connected with the accident, I am of the opinion that the latter theory is correct. Booth was a single man, aged 23 years.

On July 6, John Bollok, Slavish, miner, aged 53 years and single, was fatally injured by a fall of slate, in the Acme mine. He was removed to the Connellsville hospital, where he died on September 5.

Charles H. Keifer, American, driver, was fatally injured in Vigilant mine, November 1, by being run over by a trip. A short time previous to the accident the deceased, with two other drivers, William Lashing and David Bennett, entered entry 21 to gather full trips, so as to move them to the double parting, located on the main entry. The latter driver gathered a trip of four cars and started out with them; in due time the deceased started with his trip after having been told by Lashing to whistle when he was ready for him to start. Not hearing the signal, Lashing started down the entry to ascertain the cause and heard Keifer cry out "Oh, My God, hurry up." Upon reaching the latter, he (Lashing) found Keifer with one leg, which was terribly mangled, across the rail; two cars, it is supposed, having

passed over it. Upon being questioned, Keifer said that he slipped on a piece of slate and was thrown under the cars. From this it is supposed that he had gotten off his trip to remove the sprags, the grade at this crossing necessitating their use. In investigating this accident, I found quite a difference of opinion in regard to the proper place to remove sprags, some claiming that it was between rooms 25 and 26 and not where deceased was caught, while others who testified before the coroner claimed that any point between rooms 25 and 29 was the place to remove sprags. The mine foreman, however, said that the proper place is between rooms 25 and 26, which place was made for the purpose.

In Fidelity mine, on November 4, Peter Ambrose, Hungarian, miner, aged 46 years, was so seriously injured by a fall of coal that death resulted some three hours after. Ambrose left a widow and two children in Hungary.

Jacob Ferri, Italian, miner, was seriously injured at the Ivill mine on November 24, and died on November 26. This accident occurred in entry 51, by a fall of slate. This slate showed a slip running parallel with the entry pillar and some three feet from it; at right angles to this was another, the angle of fracture of each being against safety. Ferri was 42 years of age. He left a widow and nine children.

On December 21, in Amity mine, Jacob Heasley, American, mine foreman, was so injured by a fall of roof coal that death resulted some ten days after. The deceased was superintending the taking down of some roof opposite room 32, on entry 7; near by, a car was standing, and between this and the entry pillar stood the deceased, when suddenly some of the roof fell, catching Heasley between it and one of the wheels of the car, with result as above stated. He was 58 years of age and left a widow and two children.

Joseph Skawps, Slavish, miner, was instantly killed in Cincinnati mine on December 23, by being run over by the dilly trip. It is not positively known how this accident occurred, but it is supposed that he tried to cross the line to get into a shelter hole and before he could do so, the trip caught him, as some of his effects were found close by. The body was dragged some 420 feet and terribly mangled. The deceased left a widow but no children.

TABLE I.—Showing Location etc., of Collieries in the First Bituminous Mine District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Anchor, | A. G. & J. E. Leonard, | Fayette, | J. E. Leonard, | Roscoe. |
| Arnold, | Johnson Coal Mining Co., | Fayette, | J. H. Moorefield, | Fayette City. |
| Albany, | Snowden, Gould & Co., | Fayette, | William Seddon, | Brownsville. |
| Acme, | Stockdale Coal Co., | Washington, | C. W. Braynell, | Monarch. |
| Allen, | Allen Coal Co., | Washington, | C. W. Braynell, | Monarch |
| Anderson, | D. M. Anderson, | Washington, | D. M. Anderson, | Venetia. |
| Abe Hays, | Abe Hays Coal Co., | Washington, | | Monongahela. |
| Apollo, | C. Jutte & Co., | Fayette, | R. J. Gregg, | Fayette City. |
| Allequippa, | Bailey, Wilson & Co., | Allegheny, | W. W. Wilson, | Camden. |
| Amity, | S. S. Crump & Co., | Allegheny, | S. S. Crump, | Pittsburgh. |
| Bunola, | Bunola Mining Co., | Allegheny, | Joseph A. Stone, | Bunola. |
| Banner, | J. M. Risher Coal Co., | Washington, | R. P. Risher, | Dravosburg. |
| Blyth, | Blyth Coal Co., | Washington, | T. C. Conell, | Dunlevy. |
| Black Diamond, | W. H. Brown Son, | Washington, | James Louttit, | Monongahela. |
| Beaumont, | Puriglone & Garden, | Washington, | Samuel Pursglove, | West Brownsville. |
| Buffalo, | Courtney Coal Co., | Washington, | James B. Surail, | Monongahela. |
| Coal Bluff, | J. M. Risher Coal Co., | Washington, | William Smith, | Coal Bluff. |
| Cincinnati, | C. Jutte & Co., | Washington, | John McMinimy, | Courtney. |
| Cliff, | J. M. Risher Coal Co., | Washington, | R. P. Risher, | Dravosburg. |
| Catsburg, | Catsburg Coal Co., Limited, | Washington, | Harry P. Jones, | Monongahela. |
| Coal Centre, | P. J. Forsyth & Co., | Washington, | P. J. Forsyth, | Coal Centre. |
| Clipper, | Clipper Coal Co., | Washington, | T. S. Briggs, | Allenport. |
| Courtney, | Winger Gas Coal Co., | Washington, | Wm. Griffith, | Courtney. |
| Caledonia, | T. J. Wood, | Washington, | George W. Roberts, | Ella. |
| Champion, | T. J. Wood, | Washington, | George W. Roberts, | Ella. |
| Charleroi, | Charleroi Coal Works, | Washington, | Jesse K. Johnston, | Charleroi. |
| Crescent, | California Coal Co., | Washington, | T. J. Underwood, | California. |
| Camden, | Grange, Lysle & Sons, | Allegheny, | B. M. Thomas, | No. 8 Wood St., Pittsburgh. |
| Climax, | Smith & Co., | Fayette, | M. R. Smith, | McKeesport. |
| Chamouni, | Tide Coal Co., | Fayette, | W. S. Gibson, | California. |
| Crowthers, | Jonas Crowthers, | Fayette, | Lee M. Crothers, | Fredericktown. |
| Cleveland, | J. H. Somers, | Fayette, | W. P. Bates, | Belle Vernon. |
| Christinia, | C. F. Goldenstrohm & Co., | Allegheny, | C. F. Goldstrohm, | Duquesne. |
| Eclipse River, | Eclipse Coal Co., | Washington, | D. B. Blackburn, | No. 8 Wood St., Pittsburgh. |
| Eclipse Railroad, | Osborne, Saeger & Co., | Washington, | P. F. Stambaugh, | Venetia. |
| Ella, | Ella Company, | Westmoreland, | A. E. Speakman, | Sunny Side. |
| Fayette City, | Samuel O'Neill, Attorney, | Fayette, | James O'Neil, | Fayette City. |
| Faucett, | Equitable Coal Co., | Westmoreland, | J. W. Blewer, | Webster. |
| Fox, | Fox Coal Co., | Washington, | George W. Dales, | West Brownsville. |
| Fidelity, | Fidelity Coal Co., | Washington, | Henry Kinlock, | Roscoe. |
| Germania, | Henry Florsheim, | Washington, | | Finleyville. |
| Gastonville, | Pittsburgh & Chicago Gas Coal Co., | Washington, | Geo. W. Schniderberg, | 239 Fifth Ave., Pittsburgh. |
| Gallatin, | Irwin Basin Gas Coal Co., | Westmoreland, | D. W. Van Eman, "acting," | Manown. |
| Hackett, | J. E. Boyle, | Washington, | J. E. Boyle, | Hackett. |
| Hilldale, | Hilldale Coal Co., | Washington, | S. D. Beedle, | Jones Station. |
| Ivill, | James Jones, | Washington, | James Jones, | Monongahela. |

| | | | | |
|---|---|---|---|---|
| Knob, | Knob Coal Co., | Washington, | S. H. Pearsall, | Brownville. |
| Little Alps, | Black & Deshields, | Fayette, | James Wesheilds, | Monarch. |
| Little Redstone, | Little Redstone, | Fayette, | J. T. Jones, | Gillespie. |
| Milesville, | Robert Jenkins, | Allegheny, | Robert Jenkins, | Sunny Side. |
| Mongah, | W. H. Brown Sons, | Allegheny, | James Louttit, | Monongahela. |
| Manown, | Youghiogheny Gas Coal Co., | Allegheny, | Lute Hornicle, | Manown. |
| North Webster, | Webster Gas Coal Co., | Westmoreland, | C. F. Wagoner, | Webster. |
| Nottingham, | Henry Florsheim, | Washington, | | Finleyville. |
| New Eagle, | New Eagle Coal Co., | Washington, | G. T. Cook, | New Eagle. |
| Old Eagle, | W. H. Brown Sons, | Allegheny, | James Louttit, | Monongahela. |
| Rostraver, | James & John H. Jones, | Westmoreland, | D. G. Jones, | Lock No. 4. |
| Rock Run, | Mrs. Sarah Snodgrass, | Allegheny, | Thomas Watkins, | Camden. |
| Riverville, | Riverville Coal Co., | Washington, | E. M. Royercroft, | Fredericktown. |
| Snowden, | Pittsburgh and Chicago Gas Coal Co., | Allegheny, | Geo. W. Schneiderberg, | 232 Fifth Ave., Pittsburgh. |
| Snow Hill, | Alps Coal Co., | Fayette, | Joseph Underwood, | Roscoe. |
| Stony Hill, | Charles Bradford, | Fayette, | Chas. Bradford, | Coal Centre. |
| Shepplar, | Shepplar Gas Coal Co., | Westmoreland, | Wm. Young, | Shepplar. |
| Shoenberger, | Shoenberger Coal Co., | Washington, | James B. Smail, | Monongahela. |
| Tremont, | John A. Wood & Son, | Fayette, | S. B. Graham, | Belle Vernon. |
| Umpire, | Umpire Coal Co., | Fayette, | J. D. Simpson, | Brownville. |
| Vigilant, | California Coal Co., | Washington, | John A. Powell, | California. |
| Vesta No. 1, | Vesta Coal Co., | Washington, | R. B. Drum, | California. |
| Vesta No. 2, | Vesta Coal Co., | Washington, | R. B. Drum, | California. |
| Vesta No. 3, | Vesta Coal Co., | Washington, | R. B. Drum, | California. |
| Walton's Upper Mine, | Jos. Walton & Co., | Allegheny, | W. A. Finley, | West Elizabeth. |
| Walton's Lower Mine, | Jos. Walton & Co., | Allegheny, | W. A. Finley, | West Elizabeth. |
| Washington, | Flint & Co., | Fayette, | | Pittsburgh. |

TABLE No. 2—Gives the total number of tons of coal mined in each Colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the First Bituminous District, for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Quantity of coal in tons used for steam and heat. | Sold to local trade and use by employes. | Railroad shipments in tons of coal. | Total shipment in tons of coal by water. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs of powder used. | Number of pounds of dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arnold, | Fayette, | 109,874 | ..... | ..... | 109,874 | ..... | 141 | 130 | ..... | ..... | ..... | ..... | 2 | 10 | 1 |
| Apollo, | Fayette, | 193,789 | 540 | ..... | ..... | 193,249 | 180 | 258 | 1 | 2 | ..... | ..... | 2 | 10 | ..... |
| Albany, | Fayette, | 141,869 | 350 | 150 | ..... | 141,369 | 186 | 135 | ..... | 2 | 400 | ..... | 4 | 11 | ..... |
| Anchor, | Fayette, | 91,310 | 250 | ..... | ..... | 91,060 | 172 | 145 | 1 | ..... | ..... | ..... | 4 | 9 | ..... |
| Acme, | Washington, | 163,381 | 150 | 500 | 162,731 | ..... | 160 | 167 | 2 | 1 | 800 | ..... | ..... | 14 | ..... |
| Allen, | Washington, | 116,807 | 100 | 200 | 116,507 | ..... | 152 | 97 | ..... | 1 | 400 | ..... | ..... | 9 | ..... |
| Anderson, | Washington, | 21,642 | 150 | 200 | 21,292 | ..... | 39 | 151 | ..... | ..... | ..... | ..... | 3 | 9 | ..... |
| Abe Hays,* | Washington, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Allequippa, | Allegheny, | 111,662 | 247 | 473 | ..... | 110,942 | 110 | 221 | ..... | 1 | ..... | ..... | 2 | 14 | ..... |
| Amity, | Allegheny, | 90,484 | ..... | 2,000 | ..... | 88,484 | 115 | 193 | 2 | 2 | ..... | ..... | ..... | 22 | ..... |
| Bunola, | Allegheny, | 65,986 | 1,003 | 302 | 64,681 | ..... | 252 | 150 | ..... | 5 | 464 | ..... | 6 | 10 | ..... |
| Banner,† | Washington, | 12,000 | ..... | ..... | ..... | 12,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Blyth, | Washington, | 177,139 | ..... | ..... | 177,139 | ..... | 187 | 187 | ..... | 2 | ..... | ..... | ..... | 12 | ..... |
| Black Diamond, | Washington, | 67,043 | 330 | 300 | ..... | 66,413 | 156 | 200 | ..... | 3 | 300 | ..... | 1 | 8 | ..... |
| Beaumont, | Washington, | 30,816 | 155 | 140 | 250 | 30,271 | 51 | 104 | ..... | ..... | 180 | ..... | 2 | 8 | ..... |
| Buffalo, | Washington, | 42,793 | 280 | ..... | 42,513 | ..... | 140 | 118 | ..... | 1 | 300 | 118 | 1 | 7 | ..... |
| Beaver,‡ | Washington, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cincinnati, | Washington, | 81,082 | 430 | ..... | ..... | 80,652 | 143 | 216 | 1 | ..... | ..... | ..... | 1 | 10 | ..... |
| Cliff,* | Washington, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Coal Bluff, | Washington, | 56,140 | 1,184 | ..... | 54,956 | ..... | 128 | 180 | 1 | 3 | ..... | ..... | 4 | 10 | ..... |
| Catsburg, | Washington, | 193,620 | 600 | 1,200 | 95,910 | 95,910 | 213 | 240 | ..... | 4 | 500 | ..... | 8 | 11 | ..... |
| Coal Centre, | Washington, | 111,548 | 150 | ..... | ..... | 111,398 | 147 | 205 | ..... | 3 | 700 | ..... | 1 | 13 | ..... |
| Clipper, | Washington, | 32,285 | ..... | ..... | ..... | 32,285 | 119 | 105 | ..... | 9 | ..... | ..... | ..... | 7 | ..... |
| Courtney, | Washington, | 30,700 | ..... | 3,700 | 27,000 | ..... | 240 | 105 | ..... | 1 | ..... | ..... | 2 | 9 | ..... |
| Caledonia, | Washington, | 58,179 | ..... | ..... | ..... | 58,179 | 110 | 102 | 1 | 2 | 320 | ..... | ..... | 12 | ..... |
| Champion, | Washington, | 82,765 | 380 | ..... | ..... | 82,385 | 100 | 174 | ..... | ..... | 453 | ..... | 1 | 8 | ..... |
| Charleroi, | Washington, | 162,843 | 669 | 405 | 161,769 | ..... | 223 | 180 | ..... | 2 | 650 | ..... | 1 | 9 | ..... |
| Crescent, | Washington, | 106,056 | 500 | ..... | ..... | 105,556 | 170 | 195 | ..... | ..... | 1,200 | ..... | 1 | 8 | ..... |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Camden, | Allegheny, | 98,000 | 100 | 1,000 | | 96,900 | 130 | 219 | | 3 | | 250 | 3 | 16 | |
| Climax, | Fayette, | 15,470 | 207 | 23 | | 15,240 | 59 | 72 | | | 130 | | 2 | 5 | |
| Chamouni, | Fayette, | 314,347 | 960 | 25 | | 313,362 | 250 | 302 | 2 | | | | 1 | 17 | |
| Crouther, | Fayette, | 14,250 | | | | 14,250 | 121 | 27 | | | | | | 2 | |
| Cedar Hill,* | Fayette, | | | | | | | | | | | | | | |
| Cleveland, | Fayette, | 252,333 | 4,000 | 450 | 247,883 | | 200 | 360 | | 13 | 1,600 | 500 | 3 | 25 | |
| Christina, | Allegheny, | 22,230 | | 260 | | 21,970 | 182 | 59 | | | 30 | | 3 | 4 | |
| Eclipse, | Washington, | 136,347 | | | | 136,347 | 200 | 158 | | 2 | | | 6 | 14 | |
| Eclipse Railroad, | Washington, | 136,952 | | 300 | 136,952 | | 160 | 275 | | | 1,800 | | 3 | 22 | |
| Ella, | Westmoreland, | 141,696 | 804 | 100 | 141,062 | | 204 | 201 | | | | | 2 | 12 | |
| Fayette City, | Fayette, | 241,693 | 1,900 | 769 | | 239,024 | 209 | 228 | 1 | 6 | | | 5 | 20 | |
| Fulton, | Allegheny, | | | | | | | | | | | | | | |
| Fawcett, | Westmoreland, | 55,592 | 670 | 1,300 | 53,592 | | 148 | 63 | | | 200 | | 2 | 7 | |
| Fox, | Washington, | 24,579 | | | | 24,579 | 210 | 56 | | 1 | 110 | | | 2 | |
| Fidelity, | Washington, | 90,630 | 50 | 1,260 | 89,319 | | 120 | 85 | 1 | | | | | 7 | |
| Gallatin, | Allegheny, | 24,760 | 249 | 301 | 21,337 | 2,873 | 68 | 160 | | 1 | 56 | | 3 | 9 | |
| Germania, | Washington, | 43,893 | | | 43,893 | | 138 | 193 | | | 250 | | 1 | 8 | |
| Gastonville No. 1, | Washington, | 99,736 | 1,390 | 260 | 98,068 | | 133 | 276 | 1 | 1 | | | 1 | 15 | |
| Gastonville No. 2, | Washington, | | | | | | | | | | | | | | |
| Hackett, | Washington, | 47,210 | 40 | | 47,170 | | 98 | 156 | 1 | 4 | 200 | | 1 | 14 | |
| Hilldale, | Washington, | 36,652 | | | | 36,652 | | 139 | | | | | 2 | 8 | |
| Ivill, | Washington, | 116,194 | 200 | 1,200 | 57,397 | 57,397 | 200 | 148 | 2 | 2 | 400 | | 3 | 7 | |
| Knob, | Washington, | 128,500 | 2,500 | 500 | | 125,500 | 166 | 166 | | 2 | 600 | | 7 | 12 | |
| Little Alps, | Fayette, | 16,512 | | 50 | | 16,462 | 230 | 41 | | | 65 | | 1 | 4 | |
| Little Redstone, | Fayette, | 182,114 | 832 | 335 | | 180,947 | 185 | 149 | | 6 | | 9 | 7 | 11 | |
| Milesville, | Allegheny, | 29,939 | 125 | 200 | 15,720 | 13,899 | 100 | 100 | | | 125 | | 2 | 7 | |
| Manown, | Allegheny, | 90,073 | 2,500 | | 80,573 | | 180 | 125 | | 2 | | | 6 | 12 | |
| Mongah, | Allegheny, | 53,537 | 735 | | 11,592 | 41,210 | 214 | 90 | 1 | | 500 | | 3 | 9 | |
| North Webster, | Westmoreland, | 51,994 | 1,200 | 200 | 50,594 | | 129 | 111 | | 1 | | | 2 | 8 | |
| New Eagle, | Washington, | 26,553 | 200 | 367 | | 25,986 | 104 | 63 | | | 162 | | 2 | 3 | |
| Nottingham, | Washington, | 41,495 | 449 | | 41,046 | | 133 | 130 | | | 250 | | 1 | 10 | |
| Old Eagle, | Allegheny, | 40,317 | 500 | 250 | | 39,567 | 135 | 225 | | | 300 | | 6 | 10 | 2 |
| Rostraver, | Westmoreland, | 51,896 | 1,000 | 1,000 | 16,200 | 33,696 | 225 | 125 | | 4 | 250 | | 3 | 6 | 1 |
| Rock Run, | Allegheny, | 39,495 | 213 | 432 | | 38,850 | 71 | 133 | | | | | | 12 | |
| Riverville, | Washington, | 25,000 | 100 | 300 | | 24,600 | 195 | 34 | | | 200 | | 1 | 2 | |
| Snowden, | Allegheny, | 131,508 | 1,516 | 224 | 129,768 | | 161 | 275 | 1 | | | | 4 | 15 | |
| Stonesburg,† | Allegheny, | | | | | | | | | | | | | | |
| Snow Hill, | Fayette, | 128,481 | 405 | | | 128,076 | 178 | 165 | | | 500 | | 3 | 8 | |
| Stony Hill, | Fayette, | 75,000 | 160 | | | 74,840 | 156 | 110 | | 2 | | | 1 | 7 | |
| Shepplar, | Westmoreland, | 93,000 | 350 | 100 | 92,650 | | 195 | 80 | | 3 | | | 3 | 8 | |
| Sheonberger, | Washington, | 14,868 | | | 14,868 | | 100 | 30 | | 1 | 200 | | | 2 | |
| Tremont, | Fayette, | 144,497 | 1,745 | 375 | 54,126 | 88,251 | 182 | 175 | | | | | 6 | 11 | |
| Umpire, | Fayette, | 68,337 | 150 | | | 68,187 | 150 | 145 | | | 288 | 20 | 2 | 10 | |
| Vigilant, | Washington, | 136,337 | 1,150 | 650 | | 134,537 | 180 | 210 | 1 | 1 | 1,200 | | 3 | 8 | |
| Vesta No. 1, | Washington, | 390,630 | 5,222 | 1,351 | 9,977 | 374,080 | 196 | 240 | | 2 | 2,100 | | 6 | 23 | |
| Vesta No. 2, | Washington, | | | | | | | | | | | | | | |
| Vesta No. 3,‡ | Washington, | | | | | | | | | | | | | | |
| Walton, Upper Mine, | Allegheny, | 152,400 | 228 | | | 152,172 | 109 | 454 | 1 | | 800 | | 4 | 23 | 1 |
| Walton, Lower Mine, | Allegheny, | | | | | | | | | | | | | | |
| Washington, | Fayette, | 82,340 | 350 | | | 81,990 | 156 | 144 | 1 | | 325 | | 2 | 7 | |
| Total, | | 6,459,200 | 39,668 | 23,152 | 2,488,409 | 3,901,592 | 10,294 | 10,665 | 22 | 101 | 19,308 | 897 | 164 | 691 | 5 |

* Not in operation. †Estimated. ‡ Abandoned.

TABLE No. 3—Showing the number of each class of Employes at each Colliery in the First Bituminous District, during the year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total inside. | |
| Arnold, | 1 | ..... | 100 | 2 | 8 | 3 | 3 | 117 | ..... | 1 | 2 | ..... | 9 | 1 | 13 | 130 |
| Apollo, | 1 | 1 | 225 | ..... | 8 | ..... | ..... | 235 | 1 | 2 | 1 | 1 | 17 | 1 | 23 | 258 |
| Albany, | 1 | 1 | 99 | ..... | 10 | 2 | 7 | 120 | 1 | 3 | 3 | ..... | 7 | 1 | 15 | 135 |
| Anchor, | 1 | ..... | 125 | ..... | 5 | 2 | ..... | 137 | 1 | 1 | 2 | ..... | 2 | 2 | 8 | 145 |
| Acme, | 1 | ..... | 143 | ..... | 8 | ..... | 2 | 154 | ..... | 2 | ..... | ..... | 2 | 2 | 13 | 167 |
| Allen, | 1 | 1 | 73 | ..... | 8 | ..... | 2 | 87 | 1 | ..... | ..... | ..... | 7 | 2 | 10 | 97 |
| Anderson, | 1 | ..... | 125 | 2 | 6 | ..... | 4 | 138 | ..... | 3 | 2 | ..... | 7 | 1 | 13 | 151 |
| Allequippa, | 1 | ..... | 180 | 4 | 12 | 3 | ..... | 200 | 1 | 1 | 1 | ..... | 17 | 1 | 21 | 221 |
| Amity, | 1 | ..... | 150 | ..... | 17 | 3 | 3 | 173 | 1 | 1 | ..... | ..... | 16 | 2 | 20 | 193 |
| Bunola, | 1 | ..... | 105 | ..... | 10 | 3 | 7 | 126 | 2 | 4 | 3 | ..... | 13 | 2 | 24 | 150 |
| Blyth, | 1 | 1 | 160 | ..... | 9 | 3 | 3 | 177 | 1 | 1 | ..... | ..... | 6 | 2 | 10 | 187 |
| Black Diamond, | 1 | 2 | 164 | 4 | 9 | 4 | ..... | 184 | ..... | 3 | 2 | ..... | 9 | 2 | 16 | 200 |
| Beaumont, | 1 | ..... | 82 | ..... | 7 | 1 | 1 | 92 | 1 | 1 | 3 | ..... | 5 | 2 | 12 | 104 |
| Buffalo, | 1 | 1 | 100 | ..... | 5 | ..... | 1 | 108 | ..... | 2 | 3 | ..... | 4 | 1 | 10 | 118 |
| Coal Bluff, | 1 | 1 | 156 | 2 | 7 | 1 | 2 | 170 | ..... | 2 | 2 | ..... | 5 | 1 | 10 | 180 |
| Cincinnati, | 1 | 1 | 180 | ..... | 10 | 2 | ..... | 204 | 1 | 1 | 1 | 2 | 6 | 1 | 12 | 216 |
| Cliff, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Catsburg, | 1 | 2 | 200 | 2 | 9 | 3 | ..... | 217 | 1 | 3 | 6 | 1 | 9 | 3 | 23 | 240 |
| Coal Centre, | 1 | 1 | 169 | 4 | 11 | 3 | ..... | 189 | ..... | 2 | 2 | ..... | 10 | 2 | 16 | 205 |
| Clipper, | 1 | 1 | 85 | ..... | 7 | 2 | ..... | 96 | ..... | 1 | 1 | ..... | 5 | 2 | 9 | 105 |
| Courtney, | 1 | 1 | 75 | ..... | 8 | ..... | 11 | 96 | ..... | 2 | 2 | ..... | 2 | 3 | 9 | 105 |
| Caledonia, | 1 | 1 | 75 | ..... | 10 | 2 | ..... | 89 | 1 | 1 | ..... | ..... | 9 | 2 | 13 | 102 |
| Champion, | 1 | 1 | 150 | ..... | 8 | 3 | ..... | 163 | 1 | 2 | 2 | ..... | 6 | ..... | 11 | 174 |
| Charleroi, | 1 | ..... | 149 | 2 | 9 | 2 | ..... | 163 | ..... | 2 | 1 | ..... | 12 | 2 | 17 | 180 |
| Crescent, | 1 | 1 | 170 | ..... | 8 | 1 | 2 | 182 | ..... | 1 | 1 | ..... | 9 | 1 | 12 | 195 |
| Camden, | 1 | 1 | 175 | 3 | 13 | 3 | ..... | 201 | 1 | 1 | 1 | 1 | 13 | 1 | 18 | 219 |
| Climax, | 1 | ..... | 60 | 1 | 5 | ..... | ..... | 67 | ..... | 1 | 1 | ..... | 2 | 1 | 5 | 72 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chamouni, | 1 | 1 | 207 | ..... | 14 | 5 | 16 | 244 | 1 | 4 | 1 | ..... | 47 | 5 | 58 | 302 |
| Crowthers, | 1 | ..... | 23 | ..... | 2 | ..... | ..... | 26 | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 27 |
| Cleveland, | 1 | 1 | 225 | ..... | 25 | 10 | 68 | 330 | 1 | 4 | 4 | ..... | 18 | 3 | 30 | 360 |
| Christina, | 1 | ..... | 40 | 2 | 3 | 2 | 1 | 49 | 1 | 1 | 2 | ..... | 6 | ..... | 10 | 59 |
| Eclipse, | 1 | 1 | 121 | 3 | 6 | 3 | ..... | 135 | 1 | 2 | 3 | ..... | 15 | 2 | 23 | 158 |
| Eclipse Railroad, | 1 | ..... | 221 | 8 | 21 | 6 | 1 | 258 | ..... | 2 | 3 | ..... | 10 | 2 | 17 | 275 |
| Ella, | 1 | 1 | 125 | 3 | 30 | 4 | ..... | 164 | 1 | 4 | 3 | 4 | 23 | 2 | 37 | 201 |
| Fayette City, | 1 | 1 | 172 | 2 | 15 | 2 | 7 | 200 | 1 | 3 | 6 | ..... | 16 | 2 | 28 | 228 |
| Faucett, | 1 | ..... | 45 | ..... | 4 | 1 | ..... | 51 | ..... | 1 | 2 | ..... | 6 | 3 | 12 | 63 |
| Fox, | 1 | ..... | 40 | 3 | 2 | 1 | 3 | 50 | ..... | 1 | ..... | ..... | 3 | 2 | 6 | 56 |
| Fidelity, | 1 | ..... | 70 | ..... | 6 | 1 | ..... | 78 | 1 | 1 | ..... | ..... | 4 | 1 | 7 | 85 |
| Germania, | 1 | ..... | 175 | 2 | 6 | ..... | ..... | 184 | ..... | 1 | 1 | ..... | 6 | 1 | 9 | 193 |
| Gastonville, | 1 | ..... | 210 | 5 | 16 | 9 | 16 | 257 | 1 | 3 | 1 | ..... | 12 | 2 | 19 | 276 |
| Gallatin, | 1 | 1 | 120 | ..... | 7 | 2 | 14 | 145 | ..... | 2 | 2 | ..... | 11 | ..... | 15 | 160 |
| Hackett, | 1 | ..... | 130 | ..... | 8 | 3 | 3 | 145 | 1 | 2 | 2 | ..... | 3 | 3 | 11 | 156 |
| Hilldale, | 1 | ..... | 100 | 20 | 9 | 1 | ..... | 131 | 1 | 1 | 1 | ..... | 4 | 1 | 8 | 139 |
| Ivill, | 1 | 1 | 120 | 2 | 7 | 2 | ..... | 133 | 1 | 2 | 1 | ..... | 8 | 3 | 15 | 148 |
| Knob, | 1 | 1 | 122 | 3 | 12 | 6 | 3 | 148 | 1 | 2 | 3 | ..... | 9 | 3 | 18 | 166 |
| Little Alps, | 1 | ..... | 35 | ..... | 3 | ..... | ..... | 39 | ..... | 1 | ..... | ..... | ..... | 1 | 2 | 41 |
| Little Redstone, | 1 | 1 | 115 | ..... | 10 | 1 | ..... | 128 | ..... | 3 | 4 | ..... | 11 | 3 | 21 | 149 |
| Milesville, | 1 | 1 | 84 | ..... | 6 | 1 | ..... | 93 | ..... | 1 | 1 | ..... | 3 | 2 | 7 | 100 |
| Mongah, | 1 | 1 | 70 | 2 | 6 | 2 | ..... | 82 | ..... | 1 | 2 | ..... | 4 | 1 | 8 | 90 |
| Manown, | 1 | 1 | 86 | ..... | 10 | 3 | ..... | 101 | 1 | 2 | 3 | ..... | 22 | 6 | 34 | 135 |
| North Webster, | 1 | 1 | 80 | ..... | 8 | 1 | 3 | 94 | ..... | 2 | 3 | 2 | 7 | 3 | 17 | 111 |
| Nottingham, | 1 | ..... | 109 | 2 | 8 | 1 | ..... | 121 | ..... | 1 | 1 | ..... | 6 | 1 | 9 | 130 |
| New Eagle, | 1 | 1 | 50 | ..... | 4 | ..... | ..... | 56 | ..... | 1 | 2 | ..... | 3 | 1 | 7 | 63 |
| Old Eagle, | 1 | 1 | 190 | ..... | 9 | 2 | 8 | 211 | ..... | 2 | 5 | ..... | 4 | 3 | 14 | 225 |
| Rostraver, | 1 | ..... | 100 | ..... | 6 | 2 | 1 | 110 | ..... | 1 | 2 | 1 | 8 | 3 | 15 | 125 |
| Rock Run, | 1 | ..... | 110 | ..... | 8 | 2 | 2 | 123 | ..... | 2 | ..... | ..... | 6 | 2 | 10 | 133 |
| Riverville, | 1 | ..... | 25 | ..... | 2 | 1 | ..... | 29 | ..... | 1 | ..... | ..... | 3 | 1 | 5 | 34 |
| Snowden, | 1 | ..... | 210 | 20 | 13 | 5 | 6 | 255 | 1 | 3 | 2 | ..... | 12 | 2 | 20 | 275 |
| Snow Hill, | 1 | 1 | 141 | ..... | 7 | ..... | 1 | 151 | 1 | 1 | 1 | ..... | 8 | 3 | 14 | 165 |
| Stony Hill, | 1 | ..... | 90 | 1 | 6 | 2 | ..... | 100 | ..... | 1 | 1 | ..... | 7 | 1 | 10 | 110 |
| Shepplar, | 1 | 1 | 60 | ..... | 8 | 1 | 3 | 74 | ..... | 1 | 3 | 1 | 1 | ..... | 6 | 80 |
| Shoenberger, | 1 | ..... | 24 | ..... | 2 | ..... | ..... | 27 | ..... | 1 | ..... | 1 | ..... | 1 | 3 | 30 |
| Tremont, | 1 | 1 | 120 | 10 | 10 | 2 | 1 | 145 | ..... | 3 | 3 | ..... | 23 | 1 | 30 | 175 |
| Umpire, | 1 | 1 | 120 | 1 | 9 | 1 | 1 | 134 | 1 | 1 | 2 | ..... | 6 | 1 | 11 | 145 |
| Vigilant, | 1 | 1 | 180 | ..... | 8 | 1 | 3 | 194 | 1 | 1 | 2 | ..... | 10 | 2 | 16 | 210 |
| Vesta No. 1, | 1 | 1 | 150 | ..... | 16 | 2 | 42 | 212 | 1 | 3 | 7 | ..... | 13 | 4 | 28 | 240 |
| Walton, Upper, | 1 | 1 | 460 | 4 | 17 | 6 | ..... | 429 | 1 | 3 | 4 | ..... | 15 | 2 | 25 | 454 |
| Washington, | 1 | 1 | 125 | ..... | 5 | ..... | ..... | 132 | 1 | 1 | 1 | ..... | 9 | 1 | 12 | 144 |
| Total, | 67 | 41 | 8,427 | 119 | 605 | 139 | 256 | 9,654 | 34 | 117 | 126 | 14 | 599 | 121 | 1,011 | 10,665 |

TABLE No. 4—List of Fatal Accidents that occurred in and about the Mines of the First Bituminous Mine District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of Orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|
| Jan. 24. | Alvin Sheaffer, | Miner, | 34 | M. | 3 | Washington, | Fayette, | Instantly killed by a fall of slate. |
| Feb. 2. | John Fernell, | Miner, | 20 | S. | .... | Acme, | Washington, | Instantly killed by a fall of coal and slate. |
| 17. | Edward Clemmens, | Driver, | 18 | .... | .... | Walton, Upper Mine, .. | Allegheny, | Fatally injured by cars. |
| Mar. 2. | Frederick Reese, | Miner, | 57 | M. | 3 | Chamouni, | Fayette, | Fatally injured by a fall of slate. |
| 26. | Joseph Perkins, | Miner, | 63 | M. | .... | Amity, | Allegheny, | Fatally injured by a car running on him. |
| April 1. | Alfred Ferrina, | Miner, | 53 | .... | 3 | Coal Bluff, | Washington, | Instantly killed by a fall of slate. |
| 9. | John Gallagher, | Miner, | 44 | M. | 3 | Chamouni, | Fayette, | Fatally injured by a fall of slate. |
| 22. | Herman Stambaugh, | Miner, | 55 | M. | 3 | Snowdon, | Allegheny, | Fatally injured by a fall of coal. |
| May 4. | John Taylor, | Stable boss, | 32 | M. | .... | Apollo, | Fayette, | Instantly killed by a car running on him. |
| 11. | Joseph Schiplich, | Miner, | 30 | M. | .... | Caledonia, | Washington, | Killed by a fall of slate. |
| 12. | Stephen Balabock, | Loader, | 28 | M. | 2 | Anchor, | Fayette, | Killed by a fall of slate. |
| 24. | John Galbasine, | Miner, | 37 | S. | .... | Ivill, | Washington, | Instantly killed by Dilly trip. |
| 26. | John Lechman, | Miner, | 27 | S. | .... | Gastonville, | Washington, | Fatally injured by a fall of coal. |
| June 5. | Edward Van Horn, | Scraper, | 23 | S. | .... | Fayette City, | Fayette, | Killed by a fall of coal. |
| 12. | Edward Ray, | Miner, | 28 | S. | .... | Mongah, | Allegheny, | Killed by a fall of roof coal. |
| 16. | Thomas Booth, | Driver, | 23 | S. | .... | Hackett, | Washington, | Instantly killed by cars. |
| July 6. | John Bollok, | Miner, | 53 | S. | .... | Acme, | Washington, | Fatally injured by a fall of slate. |
| Nov. 1. | Charles H. Keiffer, | Driver, | 23 | S. | .... | Vigilant, | Washington, | Fatally injured by cars. |
| 4. | Peter Ambrose, | Miner, | 46 | M. | 2 | Fidelity, | Washington, | Fatally injured by a fall of coal. |
| 24. | Jacob Ferri, | Miner, | 42 | M. | 9 | Ivill, | Washington, | Fatally injured by a fall of slate. |
| Dec. 21. | Jacob Heasley, | Mine foreman, | 58 | M. | 2 | Amity, | Allegheny, | Fatally injured by a fall of roof coal. |
| 23. | Joseph Shaupe, | Miner, | .... | M. | .... | Cincinnatti, | Washington, | Instantly killed by Dilly trip. |

TABLE No. 5—List of Non-Fatal Accidents that occurred in and about the Mines of the First Bituminous Mine District, for the year ending December 31, 1897.

| Date of Accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|
| Feb. 1. | William Mangus, | Miner, | 22 | S. | Cleveland, | Fayette, | Leg broken by a fall of coal. |
| 3. | William Wylie, | Miner, | 45 | M. | Snowdon, | Allegheny, | Legs injured by a fall of coal. |
| 5. | William Clayton, | Miner, | 37 | M. | Snowdon, | Allegheny, | Leg injured by a fall of roof coal. |
| 5. | Albert Gillingham, | Repairman, | 21 | S. | Ella, | Westmoreland, | Leg broken by cars. |
| 8. | Alexander Stewart, | Driver, | 19 | S. | Fayette City, | Fayette, | Leg broken in two places by cars. |
| 19. | Frederick Katzer, | Miner, | 18 | S. | Black Diamond, | Washington, | Injured by cars. |
| 27. | Wm. Campfield, | Miner, | 22 | S. | Bunola, | Allegheny, | Leg broken in two places by a shot fired through the room pillar. |
| Mar. 1. | Charles Swank, | Driver, | 37 | M. | Snowdon, | Allegheny, | Injured by cars. |
| 2. | Baptist Flora, | Miner, | 32 | S. | Coal Bluff, | Washington, | Arm fractured by a fall of slate. |
| 8. | John James, | Machine man, | 18 | S. | Fayette City, | Fayette, | Small bone of foot broken by truck. |
| 9. | Robert Evelin, | Machine man, | 40 | S. | Cleveland, | Fayette, | Leg broken by a fall of slate. |
| 19. | Angelo Tusic, | Miner, | 35 | S. | Rostraver, | Westmoreland, | Injured by being caught between car and roof. |
| 22. | Charles McKenna, | Machine man, | 33 | M. | Cleveland, | Fayette, | Injured by a fall of "black jack." |
| 23. | Andrew Sayshie, | Miner, | 32 | S. | Fidelity, | Washington, | Arm fractured by a fall of slate. |
| 23. | Matthew Kain, | Miner, | 40 | M. | Eclipse, | Washington, | Thigh broken in two places by a fall of slate. |
| 27. | Michael Keich, | Miner, | 26 | S. | Snowdon, | Allegheny, | Foot injured by a fall of coal. |
| 29. | Michael Joice, | Loader, | 35 | M. | Little Redstone, | Fayette, | Back injured by a fall of slate. |
| 29. | Primo Paginni, | Miner, | 34 | M. | Ivill, | Washington, | Leg broken by a fall of slate. |
| April 4. | Thomas Hughes, | Driver, | 33 | S. | Cleveland, | Fayette, | Leg broken by a machine truck. |
| 16. | Allen Burner, | Miner, | .... | .... | Eclipse, | Washington, | Injured by a fall of slate. |
| 20. | John Cobach, | Miner, | 35 | M. | Little Redstone, | Fayette, | Foot injured by a fall of slate. |
| 20. | John Hausage, | Miner, | 37 | M. | Little Redstone, | Fayette, | Foot injured by a fall of slate. |
| 24. | James Bell, | Loader, | .... | .... | Knob, | Washington, | Leg broken by a fall of slate. |
| 26. | Jasper Junell, | Loader, | 41 | M. | Vesta No. 1, | Washington, | Finger broken by a post. |
| 29. | James Oats, | Loader, | 38 | M | Vesta No. 1, | Washington, | Injured by being struck by a post. |
| 30. | Anton Cathapsti, | Loader, | .... | S. | Eclipse, | Washington, | Back and thigh broken by a fall of roof coal. |
| May 4. | Thomas James, | Machine man, | 27 | S. | Bunola, | Allegheny, | Foot cut off by a mining machine. |
| 8. | John Kesaye, | Loader, | .... | S. | Little Redstone, | Fayette, | Back broken by a fall of slate. |
| 10. | Henry Harris, | Miner, | 22 | .... | Crescent, | Washington, | Injured by an explosion of fire damp and powder. |

TABLE No. 5. —Continued.

| Date of Accident. | Name of Person. | Occupation. | Age. | Married or Single. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|
| May 12, | Lewis Schmidt, | Machine helper, | 26 | .... | Fawcett, | Westmoreland, | Legs injured by being cut by machine "bitts." |
| 13, | James Harris, | Miner, | 28 | M. | Crescent, | Washington, | Injured by cars. |
| 17, | Robert Reed, | Driver, | 38 | M. | Fayette City, | Fayette, | Seriously injured by being caught by Dilly line. |
| 20, | Jabus Harper, | Miner, | 40 | M. | Knob, | Washington, | Injured by a fall of slate. |
| 22, | James Rue, | Loader, | 16 | M. | Ella, | Westmoreland, | Injured by an explosion of fire damp and coal dust. |
| 24, | George Kowash, | Miner, | 32 | .... | Knob, | Washington, | Injured by a fall of slate. |
| 31, | Charles Evans, | Driver, | 21 | S. | Ella, | Westmoreland, | Leg broken by being caught between car and "single-tree." |
| June 2, | Andrew Houn, | Miner, | 30 | M. | Cleveland, | Fayette, | Slightly injured by a fall of slate. |
| 2, | Joseph Axton, | Driver, | 25 | M. | Caledonia, | Washington, | Foot injured by cars. |
| 2, | Richard Sanderson, | Miner, | 54 | S. | Stony Hill, | Fayette, | Leg broken by a post. |
| 4, | Antonio Muliney, | Miner, | 21 | .... | Gastonville, | Washington, | Injured by a dynamite cap exploding in his hand. |
| 8, | Molman Soudan, | Miner, | 38 | .... | Beaumont, | Washington, | Leg broken by a fall of slate. |
| 10, | C. W. Heath, | Miner, | 25 | S. | Cincinnati, | Washington, | Leg broken by a fall of slate. |
| 10, | John Albrecht, | Miner, | 36 | M. | Little Redstone, | Fayette, | Leg broken by a fall of slate. |
| 14, | Antonio Fansite, | Miner, | 28 | S. | Cleveland, | Fayette, | Back injured by a fall of slate. |
| 14, | John Statham, | Miner, | 45 | M. | Catsburg, | Washington, | Injured by Dilly trip. |
| 18, | Peetra Damioline, | Miner, | 25 | S. | Rostraver, | Westmoreland, | Injured by a fall of roof coal. |
| 19, | Joshua Langham, | Miner, | 52 | M. | Apollo, | Fayette, | Leg injured by Dilly trip; amputated subsequently. |
| 24, | Adam Parria, | Miner, | 30 | M. | Fox, | Washington, | Fractured a rib while lifting a lump of coal. |
| July 3, | Unknown, | Miner, | 40 | .... | Ella, | Westmoreland, | Injured by a fall of slate. |
| 6, | John Bollok, | Miner, | 52 | S. | Acme, | Washington, | Back injured by a fall of slate. |
| 31, | Theodore Panishi, | Miner, | 45 | S. | Bunola, | Allegheny, | Injured by a fall of slate. |
| Aug. 19, | Lewis Gillingham, | Driver, | 46 | M. | Ella, | Westmoreland, | Collar bone broken by being caught between coal pillar and Dilly line. |
| Sept. 18, | Griffith George, | Miner, | 48 | M. | Cleveland, | Fayette, | Injured slightly by a fall of slate. |
| 21, | Casper Progisinsvy, | Miner, | 42 | M. | Fox, | Washington, | Leg and collar bone broken by a fall of slate. |
| Oct. 1, | Rudolph Bachus, | Miner, | 15 | S. | Eclipse, | Washington, | Thigh broken by a fall of slate. |
| 1, | George Aikens, | Miner, | 30 | S. | Hackett, | Washington, | Injured by a fall of slate. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Oct. | 1, | Joseph Rissell, | Miner, | 45 | M. | Cleveland, | Fayette, | Finger injured by coal; amputated afterwards. |
| | 5, | Stephen Berish, | Miner, | 44 | M. | Hackett, | Washington, | Injured by a fall of slate. |
| | 8, | Frederick Barrister, | Miner, | 33 | S. | Cleveland, | Fayette, | Injured by cars. |
| | 11, | Valex Catsmarshey, | Miner, | 42 | S. | Catsburg, | Washington, | Injured by a fall of slate. |
| | 16, | William Chilton, | Dilly rider, | 30 | S. | Buffalo, | Washington, | Injured by a truck running on him. |
| | 18, | Miyk Vorgo, | Miner, | 27 | S. | Beaumont, | Washington, | Leg broken by a fall of slate. |
| | 19, | Matthew Wilson, | Driver, | 22 | S. | Allen, | Washington, | Finger injured by being caught between car and post. |
| | 29, | Henry Wind, | Waterman, | 30 | M. | Cleveland, | Fayette, | Burned in some unknown manner. |
| | 30, | Henry Miller, | Miner, | 25 | M. | Cleveland, | Fayette, | Injured by a fall of slate. |
| Nov. | 4, | Mathew Standberger, | Miner, | 28 | S. | Vigilant, | Washington, | Slightly injured by a fall of slate. |
| | 6, | Peter Donebrohey, | Miner, | 46 | M. | Catsburg, | Washington, | Seriously injured by a fall of slate. |
| | 10, | Joseph Sucheny, | Miner, | .... | M. | Gallatin, | Allegheny, | Injured by a fall of slate. |
| | 15, | Ralph Assinger, | Miner, | 21 | S. | Stony Hill, | Fayette, | Leg broken by a fall of slate. |
| | 17, | August Broft, | Miner, | 34 | S. | North Webster, | Westmoreland, | Seriously injured by a runaway car on incline. |
| | 17, | George Myford, | Check weighman, | .... | .... | North Webster, | Westmoreland, | Slightly injured by a runaway car. |
| | 17, | Henry Burt, | Day hand, | .... | .... | North Webster, | Westmoreland, | Slightly injured by a runaway car. |
| | 22, | Morton Budder, | Water hauler, | 40 | .... | Fayette City, | Fayette, | Injured by a car running on him. |
| | 28, | Frank Putom, | Driver, | 21 | S. | Rostraver, | Westmoreland, | Injured by being caught between car and rib. |
| | 29, | William Lukie, | Miner, | 40 | .... | Gastonville, | Washington, | Injured by being struck by a post. |
| | 29, | William Acton, | Miner, | .... | .... | Apollo, | Fayette, | Seriously injured by premature explosion of a blast. |
| Dec. | 9, | William Little, | Loader, | 36 | M. | Ella, | Westmoreland, | Injured by a pick. |
| | 9, | George Rego, | Loader, | 30 | S. | Ella, | Westmoreland, | Hand injured by being caught between post and rib. |
| | 13, | William Harrison, | Miner, | 17 | S. | Ella, | Westmoreland, | Injured by being caught between car and coal pillar. |
| | 14, | John Diar, | Loader, | 23 | S. | Ella, | Westmoreland, | Injured by a fall of slate. |
| | 15, | Michael Borabriet, | Machine man, | 35 | M. | Catsburg, | Washington, | Injured by machine truck. |
| | 17, | Andrew Quiet, | Miner, | 40 | M. | Eclipse, | Washington, | Injured by a fall of slate. |
| | 18, | Hugh Maxwell, | Miner, | 50 | S. | Eclipse, | Washington, | Leg broken by being struck by a post. |
| | 20, | Squire Davis, | Miner, | 36 | S. | Hackett, | Washington, | Leg broken by cars. |
| | 20, | Joseph Vercia, | Miner, | 48 | M. | Hackett, | Washington, | Slightly injured by a fall of slate. |
| | 21, | Walter Hopkins, | Miner, | 58 | M. | Gallatin, | Fayette, | Severely injured by a fall of slate. |
| | 22, | Frank Johnston, | Miner, | 30 | S. | Little Redstone, | Allegheny, | Injured by a fall of slate. |

# SECOND BITUMINOUS DISTRICT.

(ALLEGHENY, INDIANA AND WESTMORELAND COUNTIES.)

Greensburg, Pa., February 9, 1898.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I have the honor to herewith submit my report as Inspector of Mines for the Second bituminous coal district for the seven and one-half months ending December 31, 1897.

The coal and coke trade has been somewhat improved during 1897. In 1896 the total production was 7,364,771½ tons of coal and 1,902,643½ tons of coke, while this year the production is 9,134,797 tons of coal and 2,505,350 tons of coke, showing an increase of 1,770,025½ tons of coal and 602,706½ tons of coke over the output of 1896.

As a consequence of the increased demand for coal and coke, a greater number of persons were employed. In 1896 the number of persons employed was 11,040; in 1897, the number was 12,272, an increase of 1,232.

In 1896 there were 26 fatal accidents; in 1897, there were 21, a decrease of 5. The non-fatal accidents in 1896 were 31; in 1897, 52, an increase of 21, but among this number only a few were of a serious nature. Of the fatal accidents, one occurred outside of the mines, an explanation of which appears in another part of this report. Five fatal and fifteen non-fatal accidents occurred during the term of my predecessor, Mr. William Jenkins, which embraced the first four and one-half months of the year 1897, and a prosecution for violation of section 1, article XXI, of an act relating to bituminous coal mines, approved May 15, 1893, is reported by me at Mr. Jenkins' request.

The report contains the tables showing the location of the various collieries in the district, the number of tons of coal mined and coke manufactured, the number of tons of coal used for steam and heat, sold to local trade and used by employes, also the railroad shipments in tons of coal made from each mine, together with a statement of the number of each class of employes and the number of fatal and non-fatal accidents which were reported as having occurred at the various mines.

Upon investigation into the cause of the fatal accidents I found

that a number were due to ignorance on the part of the unfortunates themselves of the dangers incident to the mining of coal or to the violation by them of orders given. While others could be classed as purely accidental, and which could not have been averted.

I have, in another part of this report, given a statement of each of the fatal accidents to which your attention is called.

Summary of Statistics, 1897.

| | |
|---|---|
| Number of mines in the district, | 72 |
| Number of mines operated during the year, | 66 |
| Number of mines idle during the year, | 6 |
| Number of mines opened during the year, | 2 |
| Number of mines dropped from the report during the year, | 2 |
| Number of persons employed inside the mines, | 9,326 |
| Number of persons employed outside the mines, | 2,946 |
| Total number of persons employed, | 12,272 |
| Number of tons (2,000 lbs.) of coal mined during the year, | 9,134,797 |
| Number of tons (2,000 lbs.) of coal used for steam and heat, | 181,313 |
| Number of tons (2,000 lbs.) of coal sold to local trade and used by employes, | 104,597 |
| Number of tons (2,000 lbs.) of coal shipped during the year, | 5,147,825 |
| Number of tons (2,000 lbs.) of coke produced during the year, | 2,505,350 |
| Number of tons of coal mined for each fatal accident, | 434,990.3 |
| Number of tons of coal mined for each non-fatal accident, | 175,669.1 |
| Number of persons employed for each fatal accident, | 584.38 |
| Number of persons employed for each non-fatal accident, | 236 |
| Number of horses and mules in use, | 1,102 |
| Number of steam locomotives in use inside the mines, | 4 |
| Number of steam locomotives in use outside the mines, | 20 |
| Number of electric motors in use inside the mines, | 2 |
| Number of compressed air locomotives in use inside the mines, | 1 |
| Number of coke ovens built during the year, | 388 |
| Number of coke ovens in the district, | 7,695 |
| Number of kegs of powder reported as used in the mines, | 533 |
| Number of pounds of dynamite reported as used in the mines, | 3,167 |

| | |
|---|---|
| Number of steam boilers in use, | 266 |
| Number of fatal accidents during the year, | 21 |
| Number of non-fatal accidents during the year, | 52 |
| Number of widows by fatalities, | 12 |
| Number of orphans by fatalities, | 33 |
| Number of days worked by all the mines during the year, | 15,170½ |
| Average number of days worked by all the mines during the year, | 229¼ |

Classification of Accidents.

| | Fatal. | Non-fatal. |
|---|---|---|
| By falls of slate, | 9 | 16 |
| By falls of roof, | 2 | 9 |
| By falls of coal, | 2 | 2 |
| By falls of "horseback," | 1 | 2 |
| By falls of coal and slate, | 1 | 3 |
| By falling down shaft, | 1 | .. |
| By premature blasts, | .. | 3 |
| By being smothered in coal bin, | 1 | .. |
| By mine wagons, | 3 | 14 |
| By being struck by a post, | .. | 1 |
| By being caught between mule and post, | .. | 1 |
| By something which fell down shaft, | 1 | .. |
| By being struck by a dilly rope, | .. | 1 |
| Total, | 21 | 52 |

The above figures go to show that rules should be strictly enforced to compel miners and other employes to be more careful.

I do not wish to be understood as blaming employes for all accidents that happen, though I am warranted in saying that a great number of them are due to want of vigilance and care.

The largest number of accidents, as shown by the table, was due to falls of slate, and may be attributed to some extent to errors of judgment on part of the miners. This being the case, they should be compelled to set up posts at regular distances, whether they pronounce the slate safe or unsafe. The enforcement of a rule to this effect has been respectfully asked of all the mine foremen in the district, and I hope, as a result, that the number of accidents from this cause will be diminished.

Some misunderstanding of the law appears to have prevailed in some of the mines in the district with reference to holes for shelter on hauling roads, where men have to pass to and from their work, as, on

my first visit, I found some mines in which they had been sadly neglected. However, I have called the attention of those in charge to this matter and am pleased to note that several have complied with my request, but am sorry to say that there are a few who seem somewhat slow to act in this regard. Why they do not, I am unable to say.

Another very bad practice prevails in some mines in the district, and that is the use of what are known as mixed lights in mines where fire-damp is being generated, especially when it is found and reported on rib falls by the fire boss in the morning, and safety lamps are given to the men who work in these places. This would be proper if the safety lamps were allowed to remain there, but this is not always the case, as, very often, another examination of the place is made by the mine foreman or fire boss after the men have commenced work, and if no fire-damp is then found, the safety lamps are taken from the men and they are allowed to work with open lights, notwithstanding that in many places where pillars are being drawn, the fall has closed the place up until it is impossible to tell whether or not there is any fire-damp two feet above the level of the roof.

This kind of management I am positively opposed to, and the managers of such mines are well aware of the fact, as I have given them my opinion on each visit made to their mines.

Three parties were convicted in the quarter session court of Allegheny county, June session, 1897, for violation of section 1, article XXI, of the bituminous mining laws of 1893. There had been a dispute between the owner of the surface, and the lessee of the Ocean mine, in Wilkins township, about the right of the latter to ventilate through the surface. The defendants were sons of the owner of the surface, and about the 28th of March, 1897, they obstructed the air shaft by throwing boards and dirt over the mouth of it, and so obstucting the "outcast," that the smoke from the furnace was driven back into the rooms, and some of it was seen coming out of the pit mouth.

This vitiated the air all through the mine, but as it generated no noxious gases, no accident occurred.

In order to bring the case under the provisions of the mining laws, it was necessary to prove that at least ten persons were employed in the mine on the date of the offense, and this was done by calling some of those who were working in the mine on that day, and by those who could testify to having seen that number in the mines that day. During the trial, the defense offered proof bearing on the civil phase of the issue, but this was ruled out by Judge Stowe, who held that this phase of the case should be settled in the equity courts, and that the only question at issue was whether or not the defendants had obstructed the air course.

The article under which they were convicted is as follows:

Article XXI.

"Section 1. Any person or persons whomsoever who shall intentionally or carelessly injure any shaft, safety lamp, instrument, air course or brattice, or obstruct or throw open air ways, or take matches for any purpose, or pipes or other smokers' articles beyond any station inside of which locked safety lamps are used, or injure any part of the machinery or open a door in the mine and not close it again immediately or open any door the opening of which is forbidden, or disobey any order given in carrying out the provisions of this act, or do any other act whatsoever whereby the lives or the health of persons or the security of the miners or the machinery is endangered, shall be deemed guilty of a misdemeanor and may be punished in a manner provided for in this article."—Act of May 15, 1893, P. L. 87.

In due course, the defendants were sentenced to pay a fine and the costs of prosecution.

The information had been made by Inspector Jenkins before his term had expired. He, with Inspector Ross, appeared on the part of the Commonwealth.

D. R. Jones, Esq., of the Pittsburg bar, assisted in drawing up the indictment, and conducted the case for the Commonwealth at the trial, and John S. Ferguson, Esq., was counsel for the defendants.

On information received from Robert Hay, mine boss of the Standard mines, belonging to the H. C. Frick Coke Company, I instituted proceedings against Jack Roseman and William Kochesky before George S. Owens, a justice of the peace of this county, charging them with intentionally and carelessly opening the safety lamps which each of them carried at a place wherein none but locked safety lamps were allowed to be used by order of the mine boss, said safety lamps being burning at the time they were opened; also, charging them with using open lights in working places of the mine through which firedamp might be carried in the air current in dangerous quantities; also, charging them with taking a pipe and other smokers' articles into the same place.

The information also charged the defendants with wrongfully opening said locked safety lamps and with injuring them, in violation of section 5 of article V, section 1 of article XXI, of the act of May 15, 1893, P. L. 52.

A warrant was issued for their arrest and placed in the hands of an officer, but at the present writing the defendants are still at large.

Accompanying this report is a photograph and plate of a new compressed air locomotive recently installed at the Carbon mines. These,

with the map and description of the haulage were kindly furnished by Mr. James S. Mack, chief engineer of the Carbon Coal Company.

All of which is respectfully submitted.

Very respectfully,

C. B. ROSS,
Inspector.

## Description of Mines and Mine Improvements in the Second Bituminous District.

### Mines On and Near the River Division of the Allegheny Valley Railroad.

Lucesco Drift.—Idle the entire year.

Sandy Creek Drift.—I found this mine in very fair condition on each visit. The average volume of air passing at the outlet was 37,080 cubic feet per minute, which entered at five separate inlets and was being well conveyed to the face of the workings. The mine is also well drained.

During the year a new furnace has been built, size 6x7 feet—42 feet of fire surface. This furnace was built at the outcrop of coal seam, and a stack 30 feet high erected. On my last visit the furnace was not in full operation, as the main airway leading from the mine to the furnace was not completed.

The road through the third hill has been graded and laid with 45-pound steel rails; the roof has also been taken down, making the height about eight feet; this was done in order to allow the mine locomotive to pass through the hill, thereby decreasing the number of mules in use at present; length of tunnel, about 2,000 feet. This makes three tunnels through which the coal is hauled, and also two inclined places over which it passes before it reaches the tipple. Mine foreman, Joseph Corbett.

Plum Creek Drift.—Located near the terminus of the Plum Creek branch of the Allegheny Valley Railroad River division. This mine is now in excellent condition in regard to both ventilation and drainage. The quantity of air in circulation, when last measured, 66,600 cubic feet per minute, which was being well conveyed to the face of the workings. Mine foreman, John W. Sterling.

### Mines On and Near the Pittsburgh Division of the Pennsylvania Railroad.

Weinman Drift.—This is a small mine, employing twelve persons inside. On my last visit I measured 2,400 cubic feet of air per minute passing in at the inlet. Drainage good. Mine foreman, Weinman.

Ocean Drift.—Ventilated at present by natural forces and employs only nine persons inside, and therefore does not come under the provisions of the law. But this is not the fault of the operators, as there is a furnace in the mine, which was always kept in operation until about the 28th of March, 1897, when the owner or owners of the surface obstructed the furnace shaft by covering it with boards and earth at the top, thereby compelling the mangement to quench the fire in the furnace and to reduce the number of persons employed inside below ten in order to comply with the mining law.

The pillar workings in this mine give off considerable black damp ($C. O.^2$) and on each examination I found the ventilation very defective. Legal proceedings were brought against the parties at fault, an explanation of which appears in this report. Mine foreman, Gottleib Vogele.

Hampton Drift.—The general condition of this mine, when visited, was found very favorable. The quantity of air passing at the outlet per minute was 15,600 cubic feet, which was being fairly well conducted to the face of the workings. Mine foreman, Edgar Thompson.

Duquesne Drift.—Very little work has been done at this mine during the year; nevertheless, the drainage has been kept in very fair condition. The quantity of air passing at the outlet, when last measured, was 21,750 cubic feet per minute, which was being fairly well conveyed to the face of the workings, except in No. 2 butt on first face entry. I suggested that the law relating to ventilation be complied with. Whether or not the above suggestion was carried out, I am unable to say, as the mine closed down shortly after, and remains closed at present writing. Mine foreman, Mark James.

Spring Hill No. 2 Drift.—On my last examination, I found the ventilation and drainage very good. The quantity of air passing at the outlet was 48,600 cubic feet per minute, which was being well distributed around the workings. Mine foreman, William B. Morris.

Oak Hill No. 4 Drift.—The general condition of this mine was satisfactory. On my last visit, I measured 57,300 cubic feet of air per minute in circulation. The drainage is very good. Mine foreman, William P. Owens.

Larimer No. 4 Drift.—The general condition of this mine, when last examined, was favorable, both in regard to ventilation and drainage. I measured a volume of 63,750 cubic feet of air per minute in circulation, which was being fairly well conducted to the working parts of the mine. Mine foreman, John Williams.

Penn Gas Coal Run Drift.—On each examination of this mine, I found the ventilation and drainage very good. The quantity of air passing at the outlet was 27,810 cubic feet per minute. Mine foreman, William Rodgers.

Penn Gas Slope.—Idle the entire year.

Penn Gas. No. 1 shaft.—At each examination of this mine, I found the ventilation and drainage satisfactory. The average volume of air passing at the inlet per minute was 46,734 cubic feet. This volume entered at the top of each butt entry and was fairly well conveyed to the face of the workings. Mine foreman, John Bolam.

Westmoreland Shaft.—This is a large mine, employing a great number of men. Mining machines are used to undercut the coal in many places. Blasting operations are carried on to some extent, and the mine is worked principally with open lights, and it requires very brisk air currents to carry away the smoke as fast as it is produced. In order to do this, check doors of canvas are placed on the butt entries, which convey the air to the face of the room and pillar workings; canvas brattices are also used in the entries beyond the last cut-through to carry the air up to the face.

The fan now in use has about all the work it is able to perform under present conditions. Quantity of air passing at the inlet, when last measured, 45,980 cubic feet per minute, and those in charge of the mine deserve credit for the manner in which they convey this quantity to the face of the workings. An extension of the endless rope system of hauling has been made in the workings of the mine for a distance of about 2,500 feet farther, thereby facilitating the hauling of coal. Mine foreman, James Thompson.

Pleasant Valley Drift.—This mine is in fair condition both in regard to ventilation and drainage. The last air measurement taken, showed 19,200 cubic feet per minute passing at the outlet. Mine foreman, Joseph H. Powell.

Hempfield Slope.—The general condition of this mine has been favorable on each examination. The average quantity of air in circulation was 39,540 cubic feet per minute, which was being well distributed around the workings. Mine foreman, E. B. Davis.

Monastery Slope.—The general condition of this mine was satisfactory on my last visit. I measured 40,000 cubic feet of air per minute in circulation, which was well conducted around the workings. Mine foreman, George W. Wilkes.

Latrobe Coal Works Slope.—The condition of this mine when last examined was satisfactory, both in regard to ventilation and drainage. The volume of air in circulation was 45,000 cubic feet per minute, which was being well distributed around the workings. Mine foreman, Stephen Arkwright.

M. Saxman Shaft.—The drainage in this mine when last examined was satisfactory, but the ventilation required improvement. I called the attention of those in charge to the law relating to ventilation, and suggested that the same be complied with as soon as possible. Mine foreman, John C. Dovey.

Loyalhanna Nos. 1 and 2 Shafts.—These mines have been found in

very fair condition in regard to ventilation and drainage. On my last visit, I measured 63,000 cubic feet of air per minute, at the inlet, which was being well distributed around the workings. An extension of the tail-rope system of haulage has been made in the mines for a distance of 4,000 feet, which works very successfully. Mine foreman, E. W. Altman.

Pandora Shaft.—Very little work has been done in this mine during the year, owing to the lack of demand for coal. The ventilation is very good, and the drainage fair. The quantity of air in circulation, when last measured, was 51,300 cubic feet per minute. Mine foreman, Enoch Rowley.

Derry Shaft.—On each examination of this mine I found the ventilation and drainage very good. The average quantity of air passing at the inlet per minute was 57,000 cubic feet, which was being carried forward to the face of the working. During the year a new 12-ton electric motor has been added to the machinery of this mine. This, with the one now in use, will be sufficient to haul all the coal produced in this mine for some time to come. Mine foreman, H. L. Henderson.

Atlantic Drift.—This mine is in fair condition. The workings are about all worked up to the boundary line, and two or three years will exhaust it entirely. A new slope opening is being made in a new coal field, which, when completed, will furnish a way for the coal for the ovens, and also that which is shipped from the old mine. It is the intention of the management to open up this new field and equip the same with machinery so that the output in the future can be doubled whenever required. The opening at present is down about 30 feet and is neatly timbered with 10 sets of 10x12 oak timbers. Mine foreman, John Baker.

Saint Clair Slope.—This mine has been found in a very favorable condition. On my last visit there was 20,090 cubic feet of air per minute passing through the furnace shaft, and about 5,000 to 10,000 cubic feet was measured near the face of each butt entry. The drainage was well attended to. Mine foreman, Richard Meagher.

Millwood Shaft.—This mine was in fair condition when last examined. The quantity of air passing at the inlet, 21,080 cubic feet per minute, which was being well distributed around the workings. Drainage, fair. Mine foreman, Thomas Thomas.

Lockport Drift.—This is a small mine and very seldom employes a sufficient number of persons inside to come under the provisions of the law. The ventilation is produced by natural forces. On examining this mine, I found it in fair condition. The quantity of air passing at the outlet was 4,200 cubic feet per minute. The drainage was also in fair condition. Mine foreman, John Walters.

Export Drift.—Located at the terminus of the Turtle Creek branch of the P. R. R. On my last visit, I found it in a very favorable con-

dition, and was well pleased to learn that those in charge had taken steps to prohibit the use of impure oil in the mine. The quantity of air passing at the outlet was 56,000 cubic feet per minute. This volume enters at three separate inlets, and is well carried up to the face of the workings. The mine is also well drained. Mine foreman, George Carroll.

Mines On and Near the Youghiogheny Railroad, Which Runs From Irwin, on the P. R. R., to Sewickley, on the B. & O. R. R.

Penn Gas No. 2 Shaft.—This mine has been kept in fair condition. On my last visit, the quantity of air passing at the outlet per minute was 43,120 cubic feet. This volume was divided into three splits and was well distributed around the workings. The drainage is very good. Mine foreman, William Jamison.

Penn Gas No. 3 Shaft.—Idle the entire year.

Penn Gas No. 4 Drift.—This mine has been idle since August last and was not in operation when visited. I measured 13,200 cubic feet of air per minute passing at the inlet. This was being produced by natural forces, as the furnace was not in operation. Mine foreman, James Absalom.

Mines On and Near the Manor Branch of the Pennsylvania R. R.

Claridge Drift.—This mine is in reasonably good condition. The quantity of air passing at the outlet when last measured was 21,060 cubic feet per minute, which was being fairly well conducted to the face of the workings. There is some talk of installing a fan at this mine in the near future, which, I hope, will be done, as the pillar workings give off considerable black damp ($C. O.^2$), and from present indications it will be only a short time until the furnace will be unable to produce a sufficient quantity of air to remove it. The drainage is very good. Mine foreman, William Johnson.

Denmark Slope.—At each examination of this mine I found it in very fair condition. The quantity of air passing at the outlet, when last measured, was 43,400 cubic feet per minute, and from 4,600 to 9,400 cubic feet were passing near the face of each butt entry. The fan was not running at its regular speed, owing to some repairs which were being made in the shaft. Mine foreman, Edward Whiteman.

Penn Manor Shaft.—This mine was in fair condition when last examined. The quantity of air passing at the inlet per minute was 53,200 cubic feet, which was being well distributed around the workings of the mine. The drainage was fairly good. Mine foreman, Samuel Ferguson.

Mines On and Near the Alexandria Branch of the Pennsylvania R. R.

Alexandria Drift.—On my first visit to this mine, the condition in regards to ventilation was unsatisfactory. Upon examining the pillar workings, I found them to be giving off large quantities of black damp, which required strong currents of air to remove, and the furnace producing the ventilation did not have sufficient power to give the desired effect. However, this state of affairs did not exist long, as the ventilation has been improved by erecting a fan 16 feet in diameter, with blades 6½ feet wide, driven by an engine 12x16 inches, coupled direct to the fan.

Upon my last visit I measured 50,400 cubic feet of air per minute passing at the inlet, with the fan running eighty revolutions per minute and producing a water-gauge of 1.4 inches. The airway leading from the fan is obstructed by falls and water in several places, thus reducing the area and increasing the resistance. There are also several short curves, which are a great hindrance to the air on its course from the fan to the workings. I am informed by those in charge that in the near future this airway will be straightened and the area made larger. This, if done, will reduce the "friction" and the fan will give better results. Mine foreman, Daniel Campbell.

Jamison Slope.—This mine was in fair condition when last examined, both in regard to ventilation and drainage. The quantity of air in circulation was 22,400 cubic feet per minute. Mine foreman, John A. Hart.

Mines On and Near the Unity Branch of the Pennsylvania R. R.

Puritan, or Baggarley.—This is a new mine, situated on the Unity Branch of the P. R. R., in Unity township, Westmoreland county, and is operated by the Puritan Coke Company. It is a slope opening in the Connellsville vein of coking coal, which has here an average thickness of eight feet and a grade of thirteen feet per hundred, having been opened on the greatest pitch of the coal, on course—north, 50 degrees west. The slope at present is 1,000 feet long. Two face entries, with parallels for air, have been driven, one to the right and one to the left, for 1,000 feet each. From off these face entries, butt entries are being driven, from which the rooms are turned at regular distances. The ventilation will be furnished by a fan 20 feet in diameter, of the Guibal pattern, which now is being erected. The air will be conducted from the fan by means of an airway of 70 feet area, which is split 100 feet from the fan into two airways of 50 feet area each, one for each side of the mine, returning by way of the face entries to the slope, which is the return airway for the mine. The steam lines for the pumps will be laid in a heading driven exclusively

for them, 50 feet to the right and parallel to the slope, thus keeping the slope and manways free at all times from heat and steam.

The boilers were furnished by the Brownell Co., of Dayton, O., and consist of two 16-foot ones of 50 3-inch tubes each, having a horse power of 100 each. The boiler house is of sufficient size to double the boiler capacity whenever necessary.

The engines were built by the Kenney Company, of Scottdale, Pa. They are two first motion 20-36 inches. The boilers and pumps for the mines were manufactured by the Connellsville Car and Machine Company, of Connellsville, Pa., as was also the "larries" which are used on the ovens.

The capacity of the mine at present is about 800 tons daily, all of which is charged into 276 bee-hive ovens for coke, but by January 15, 1898, the number of ovens will be increased to 400, as 124 block ovens are now almost completed. All the ovens were built by Owen Murphy, of Mt. Pleasant, Pa.

The charging on the ovens is done by a ten-ton locomotive of H. K. Porter make. The water for the boilers, ovens and town of Baggaley is furnished by the Puritan Water Company, from the well known as "Wolf Spring," which is a mile from the works. A 12,000,000-gallon reservoir is now under construction, which will be 75 feet higher than the ovens, thus insuring at all times an almost unlimited supply of the very best water.

The town of Baggaley, which was built in connection with the mines, consists of 150 houses of five rooms each, finished in hard wood; a cellar is under each house and a hydrant at every second block, thereby giving better conveniences and water facilities than the average of similar towns.

Great credit should be given those in charge for the manner in which this mine has been opened. I consider it one of the best slope openings in this district, from the fact that it has four openings from the surface parallel with each other: first, the haulage way; second, for steam pipes; third, fan way or main inlet for ventilation and, fourth, the traveling way.

If those who contemplate opening mines in the future would take pattern from this mine in regard to the openings from the surface, there would be no trouble between the Inspector and the operator or his agent in regard to ways of ingress and egress, as required by an act relating to bituminous coal mines, approved May 15, 1893.

Upon my last visit, I found the conditions very favorable and suggested that more attention be given to the erection of the fan which was on the ground, and I have since been informed that this has been done. Should everything be carried out in extending the workings which is contemplated by those in charge, there will be very little room for complaint in the future. The officials of the mines are John

McFadden, superintendent, H. L. Bollman, assistant superintendent, and Lemuel Smith, mine foreman.

Hostetter Slope.—General condition of mine satisfactory, when last examined. The ventilation is good through all parts of the workings; air in circulation, when last measured, 64,020 cubic feet per minute. Mine foreman, George Eustis.

Whitney Slope.—This mine has been in fair condition. The average quantity of air passing at the inlet was 56,050 cubic feet per minute, which was being fairly well distributed around the workings. Mine foreman, Terrence Donnley.

S. H. Smith Drift.—This is a small mine, located on the Ligonier Valley Railroad, near Latrobe, which when last examined was in favorable condition. The quantity of air passing at the inlet was 11,500 cubic feet per minute, which was distributed around the workings. The drainage was very good. Mine foreman, Daniel Craig.

Burrell Drift.—Located on the West Penn Railroad, east of Blairsville, in Indiana county. This mine was found in fair condition on each examination. Mine foreman, Robert S. Snedden.

## Mines On and Near the Indiana Branch of the Western Pennsylvania Division of the P. R. R.

Isabella Furnace Slope.—On my second visit to this mine, I found the ventilation very unsatisfactory, there being only 8,640 cubic feet of air per minute in circulation. I suggested that the law relating to ventilation be complied with, and that no time be lost in so doing. I visited the mine about three weeks afterwards and found that the quantity of air had been increased to 39,200 cubic feet per minute, which was being fairly well distributed around the workings. Mine foreman, Morris J. Lewis.

Graff Drift.—This is a small mine and has been kept in very fair condition, notwithstanding that it has to depend on the natural forces for ventilation. Quantity of air in circulation when last measured, 7,920 cubic feet per minute. Drainage, fair. Mine foreman, William Hamer.

Maher No. 2 Drift.—The general condition of this mine has been favorable. Cubic feet of air in circulation when last measured was 7,830 per minute. The drainage is very good. Mine foreman, William Beveredge.

Smith's Drift.—Was well ventilated and drained and in fair condition generally when last examined. There was 17,520 cubic feet of air being produced, nearly all of which was being conveyed to the face of the workings. There is a new opening being made to this mine, which, when completed, will greatly facilitate the hauling of coal. Mine foreman, Roy Gerard.

Mitchell Drift and Graceton No. 1 Drift.—Idle the entire year.

Graceton No. 2 Drift.—This mine has been kept in good condition. The average quantity of air passing at the inlet was 16,100 cubic feet per minute. The drainage is very good. Mine foreman, James McKechan.

Mines On or Near the South West Branch of the Pennsylvania R. R.

Greensburg No. 1 Drift—The general condition of this mine is very fair. Quantity of air passing at the inlet when last measured was 39,000 cubic feet per minute, which was being well distributed around the face of the workings. Quantities ranging from 6,000 to 9,000 cubic feet were measured near the face of each butt entry. The drainage is very good. Mine foreman, David Clark.

Central Slope.—The general condition of this mine, when last examined, was satisfactory. The quantity of air passing at the inlet was 53,120 cubic feet per minute, which was being well distributed around the workings. There is trouble with local "dips" to some extent, which requires an extra amount of labor on the drainage, but, notwithstanding this natural difficulty, it is in very fair condition. Mine foreman, William I. Morgan.

Southwest No. 1 "A" Shaft.—General condition of mine is good. Good sweeping air currents are conducted through all parts of the workings. The drainage is also in satisfactory condition. Air in circulation, when last measured, 112,000 cubic feet per minute.

The inside improvements are the extension of a branch of the tail rope system of haulage, a distance of 2,000 feet, to what is termed No. 3 lay off, with an average grade of two feet to the hundred, thereby placing the lay off right among the miners. From the same main haulage the grading is about completed for another branch to be about 1,300 feet long.

A new Yough pump has been added, size 14x20x48 inches, to the new pumping station which was erected in 1896. A new 8-inch wooden discharge line 3,000 feet long has been laid from a 10x16x18 inch Yough pump in the dip workings, which discharges the water direct to pumping station at bottom of shaft.

Two new brick overcasts have been constructed across the manway and haulage for the purpose of taking the air direct from the main intake into the dip workings, thus decreasing the length of the airways considerably.

The outside improvements consist of moving of engine and dynamo, which furnish the electric light used in and about the mines, from the building near the top of the shaft to the fan building, about 2,500 feet away, and the brick building, size 18x26 feet, formerly used as a power house, has been converted into a lamp house, which makes a very convenient place for that purpose.

A new shop has also been built, size 16x36x100 feet, entirely of brick, with steel trusses and slate roof, divided equally into carpenter, blacksmith and machine shops. There is placed in the machine shop, one engine lathe, 24x10 feet, and one drill press, and the intention is to add to it a planer, thus enabling the operators to do all their own repair work, which will greatly reduce the cost of keeping up repairs to machinery. Mine foreman, John L. Duncan.

Southwest No. 1 "B" Shaft.—This mine was in good condition on each examination. All parts are supplied with plenty of fresh air. The quantity of air passing at the outlet, when last measured, was 86,480 cubic feet per minute. Mine foreman, John Whitfield.

Southwest No. 2 Slope.—The general condition of this mine is good, both in regard to ventilation and drainage. I measured a volume of 106,400 cubic feet of air per minute in circulation, which was being well conducted through the working parts of the mine. Mine foreman, William Howath.

Southwest No. 3 Slope.—The condition of this mine was satisfactory. The quantity of air passing at the outlet per minute was 43,040 cubic feet, which was being well conveyed to the face of the workings. The drainage was also in good condition.

The management should be highly commended for the precaution they have taken as a means of protection to both life and property, by introducing into this mine the use of locked safety lamps during the year.

The hauling has been extended about 1,000 feet during the year, thus putting the "lay off" within 200 feet of the nearest miner, and reducing the number of drivers from ten to eight. This is a tail rope haulage and has given the best of satisfaction. The outside improvements are a new stable, which has been built (the old one having been burned), the dimensions of which are 12 feet 6 inches by 40x94 feet, and is built entirely of brick, with steel trusses and slate roof. A hay house has also been built, 150 feet away from stable, which is connected by a 30-inch gauge track, running through the full length of the stable. A light truck is used to take hay and grain from hay house to stable. By this arrangement, the stable is made practically fire proof.

The hoisting shaft, which is 65 feet deep, has been retimbered with 12x12 inch timber from top to bottom. This work was done while the plant was in operation. Mine foreman, Robert Hair.

Southwest No. 4 Slope.—General condition of mine, satisfactory. Good sweeping air currents are conducted through all parts of the workings. The drainage is also in satisfactory condition. Air in circulation, when last measured, 44,800 cubic feet per minute. Locked safety lamps has been introduced into this mine during the year.

The same may be said of the management as was said in regard to No. 3 mine. Mine foreman, Robert Morris.

Mines Situated Near the Terminus of the Scottdale Branch of the P. R. R. and Mt. Pleasant Branch of the B. & O. R. R.

Standard No. 2 Shaft.—This is a very large mine and is in excellent condition. The ventilation is ample for the requirements, and is well distributed around the workings. Quantity of air passing at the outlet, when last measured, was 162,400 cubic feet per minute. The drainage is also very good. A new pump house has been built in connection with the present one. The new one is 12½x30 feet, arched with brick. Mine foreman, Robert Hay.

Standard Slope.—Idle the entire year.

Mines On or Near the Sewickley Branch of the Pennsylvania R. R.

Mammoth Shaft and Slope.—Both mines were in good condition when last examined. All matters pertaining to health and safety receive proper attention. Air passing through the fan, when last measured, was 153,000 cubic feet per minute, which was being well distributed around the workings. One fan ventilates both mines.

The drainage in the shaft mine was very good. The slope has been idle the greater part of the year, and had been in operation only about two weeks when examined, but notwithstanding this, the drainage was in very fair condition. Mine foreman, Peter Lowther.

Mutual Drift.—When last examined, the condition of the workings and ventilation was satisfactory. Quantity of air in circulation, 16,080 cubic feet per minute. Mine foreman, William Alexander.

Strickler Slope.—This mine is a hard one to manage, owing to the soft bottom which keeps continually heaving up in the pillar workings. The work at present being mostly confined to drawing pillars, makes it troublesome for the miners and expensive for the company. The mine, however, has been kept in reasonably good condition, both in regard to ventilation and drainage. Quantity of air in circulation at inlet, when last measured, 24,480 cubic feet per minute, which was well conveyed to the face of the workings. Mine foreman, Alexander Davenport.

Hecla No. 1 Shaft.—Trouble is experienced here from soft bottom, and in some parts the pillar workings give off considerable blackdamp ($C. O.^2$), but the mine has been kept in very fair condition, both in regard to ventilation and drainage. Quantity of air passing at inlet, when last measured, 50,000 cubic feet per minute.

Room No. 19, driven from No. 7 butt entry, south, has been cut through into the Strickler slope mine in this manner: This room

had been driven some distance into the pillar of coal twenty-five feet thick, which had been left standing, and in driving along the line in the Strickler mine it was cut into, in December, 1896, connecting the two mines. No. 3 butt entry, south, was also driven into this 25-foot pillar, and at the same point the Strickler people also cut into the 25-foot pillar, and the workings coming together, connected the two mines, thus allowing the water to run from the Strickler into the Hecla mine.

Some time after the opening between the two mines at No. 3 butt entry, south, had been made, Mr. J. P. K. Miller, civil engineer in charge of the Strickler slope mine, and Thomas Laird, superintendent of the Hecla mine, agreed that I should examine the opening and that they would be willing to carry out whatever suggestion or opinion I would give with reference thereto. On the 20th of September, 1897, I went to the mine for the purpose of making this examination, and, in company with Mr. Laird, Harry Hagan, the civil engineer of the Hecla mine, and William Dean, mine foreman, I entered the mine and examined the same, and after carefully considering the matter, gave it as my opinion that the openings should be closed by a wall of masonry, laid in cement, to be three feet thick, and I so informed the persons present. Mr. Thomas Laird, the superintendent, agreed with me that this was the proper thing to be done, and that he would attend to carrying out the suggestions, and, with this understanding, I left.

I again visited the mines on October 19, and found that neither of the walls had been built and that no materials were in the mine with which to construct them. I also found that the opening into the Strickler from said room No. 19 was inaccessible from either the Hecla or Strickler mine.

On September 20, the time I was called upon to give an opinion, I saw that materials could not be taken to the openings into the Strickler mine from room No. 19 through the Hecla side, for the reason that the pillars had been drawn at this point. The Strickler people, however, gave their consent that the material for the walls should be taken through their mine. Some time afterwards and before the materials had been taken into the mine for the wall, the Strickler people drew the rib which extended past this opening from room No. 19, thus allowing the roof to fall in and cutting off all access to this opening. Afterwards, I observed that the opening at No. 3 butt entry, south, was closed up by a wall of stone laid with sand and lime. Mine foreman, William Dean.

Hecla No. 2 Shaft.—All matters pertaining to the health and safety of the employes seem to be well looked after. Quantity of air in circulation at inlet, when last measured, 72,150 cubic feet, which was well distributed around the workings. Mine foreman, William Snedden.

Calumet Shaft.—The working of this mine has been confined to the development of the headings and the opening up of new work in one section. As little room and pillar work as possible has been done during the year. The object is to get to the boundary line in this section and work the coal in coming back, on the retreating system. The ventilation is sufficient for the necessities of the mine and is well distributed around the workings.

The outside improvement is a new lamp house, which has been erected during the year near the top of the shaft, size 12x22 feet, with tile floor. At one end is a hallway, which is separated from the main building by a counter, over which there is a wire screen, with three openings, through which the men receive their lamps from the persons in charge in the morning before going to work and return them in the evening after their day's work is over. Two revolving lamp stands are placed in position near the counter and so arranged that the person in charge can give out all lamps without moving a great deal.

A cupboard is placed in the building in which is kept the lamp supplies, also the mine foreman and fire boss' daily report books, together with oils, bandages, linen, etc., as required by section 1, article XVIII, of an act relating to bituminous coal mines, approved May 15, 1893. Mine foreman, James Eaton.

United Shaft.—This mine has been found in very good condition at each examination. All parts are well ventilated, and proper attention given to all matters pertaining to health and safety of the employes. The improvement in drainage in this mine has been such that it deserves space in this report and should be carefuly noted by all interested in mine management. A drainage of 13,900 lineal feet has been dug, of sufficient depth and width to carry off the water from the different entries, without including a drain which has been dug on No. 4 butt entry in dip workings, a distance of 800 feet, with an average depth of three and one-half feet. Mine foreman, Patrick Reynolds.

Humphrey's Drift.—Among the improvements made at this mine during the year was the erection of a ventilating fan of twelve feet in diameter, which was running very slowly on my last visit and producing 16,800 cubic feet of air per minute at the inlet. The drainage was in fair condition. Mine foreman, William M. Hart.

Marguerite Drift.—A new mine, situated on the Sewickley Branch of the S. W. P. R. R., in Unity township, Westmoreland county, and operated by the Standard Connellsville Coke Company. The mine is a drift opening in the Connellsville seam of coking coal. The main openings have been driven a distance of 900 feet, from which two pairs of "butt" entries are being driven to the left, from which rooms are turned at regular distances.

The capacity of the mine is about 250 tons of coal daily, all of which is made into coke. The main opening is on a level with the ovens, which allows the coal to be taken direct from the mine and charged into the ovens from the mine wagons. A tipple is not needed. The mine mouth has been neatly timbered with twenty-one sets of 8x10 inch oak timbers. The ventilation, at present, is produced by a temporary furnace which will be replaced later by a ventilating fan.

Thirty-three houses of four rooms each have been built in connection with the works. The officials are Mr. L. F. Ruth, of Connellsville, general manager, and Mr. Robert Gordon, of Greensburg, superintendent and mine foreman.

The drainage was good, and I measured 4,600 cubic feet of air in circulation.

## Mines On the Hempfield Branch of the S. W. P. R. R.

Greensburg No. 2 slope.—On each visit to this mine, I found the ventilation and drainage very good; 14,800 cubic feet of air was in circulation when last measured.

Among the improvements contemplated at this mine are a new set of haulage engines, that are now on the ground and in course of erection, which, when completed, will take the place of the old ones, that are too small, owing to the development of the mine and the increased trade. Mine foreman, John McIntyre.

Arona Slope.—When last examined, the general condition of this mine was favorable. The quantity of air in circulation was 54,000 cubic feet per minute, well distributed to the various working places. The drainage on the north side of the mine was very good, but on the south side it was somewhat defective. The water course in that part is almost on a level with the creek bed, and the water from the creek, when it rises, enters that part of the mine.

Among the improvements during the year was the erection of a ventilating fan, 16 feet in diameter, with blades 6½ feet wide, driven by an engine 16x30 inches, which was built by the Connellsville Machine and Car Company, of Connellsville, Pa. Mine foreman, William Nesbit.

Madison Slope.—Among the improvements made at this mine during the year was the changing of the haulage from the old roadway to a new one. By this change, a farther point in the mine was reached by a more direct route. At the time of my last visit, I observed that in some of the entries the velocity of the air current was not sufficient to keep the workings free from smoke. This was caused by changing the haulage, which interfered with some of the doors and brattices used for conducting the air on its proper course through the mine. I found men at work on the doors and brattices and, when they are com-

pleted, will remedy this defect. The drainage is in very fair condition. Quantity of air passing at inlet, 39,000 cubic feet per minute. Mine foreman, Henry Gardner.

Ocean No. 1 Shaft.—I entered this mine on my first visit, June 3, about 8.30 A. M., and while I was going up the north main "butt" entry with the mine foreman, Mr. William Bainbridge, an explosion of fire-damp occurred in the northeast main entry, which forced a door through the frame and also blew out some four or five stoppings between the north main butt and parallel entries, which cut the ventilation off from these entries, thereby allowing the gas to accumulate. When we reached the face, where the men were working, with safety lamps, the gas was down within eighteen inches of the bottom, where it exploded in the Davy safety lamp. This gas had accumulated in about a half hour, which proves that the entries generated fire-damp at that time very freely.

The miners were all taken out of that section of the mine and day men were put to work to rebuild the brattices and repair the door, after which the gas was removed.

About 5 o'clock P. M. we reached the face of the northeast main entry, where the explosion occurred, and found the gas extending down about two feet below the roof and back several feet to the last cut-through. I ordered the mine foreman to use brattices in these entries in order to carry the air up to the face so as to keep them clear of any accumulation of fire-damp, and also not to allow any shot firing in entries of this kind, as it was very dangerous.

He at once notified the men who were working in the entries not to fire any more shots unless authorized to do so by him.

The gas had been ignited by the flame from a shot, but fortunately no one was injured, as the men who were working in the entry had time, after they lighted the fuse, to get to another entry about 300 feet away, before the explosion occurred.

On my second visit, I found the workings comparatively clear of fire-damp. On the third visit, which was on December 15, I found the general condition of the mine and drainage very fair. I found standing gas on "rib" falls on first butt, north, but since have been informed that the greater part of it has been removed. The quantity of air in circulation, when last measured, was 132,700 cubic feet per minute, which was being well distributed around the workings.

There were thirty safety lamps in use in the mine, and more will be introduced. The mine foreman ordered sixty new lamp bottoms to take the place of those which had been damaged on December 11 by a fire, which occurred in the fan engine house, where the safety lamps and supplies were kept. This fire also destroyed that part of the fire boss' daily report book which contained the daily reports of the fire bosses, with reference to the nature and location of any dangers dicovered by them during each examination of the mine.

The outside improvement is a new lamp house, which has been built of brick, and is located a short distance from the top of the shaft, in which will be kept all safety lamps and supplies used in connection therewith. Mine foreman, William Bainbridge.

Carbon Slope.—At each examination of this mine, it was found in satisfactory condition, both in regard to ventilation and drainage, with 52,000 cubic feet of air in circulation per minute. Mine foreman, Joseph Weightman.

At my request, Mr. James S. Mack, mining engineer for the Carbon Coal Company, under whose personal supervision the plant was installed, has furnished me the following description of Carbon Coal Company's pneumatic haulage, which may be of some benefit to companies contemplating a change in the method of haulage:

The plant consists of a "three stage" air compressor, and an eleven-ton pneumatic locomotive, and a pipe line consisting of 3,000 feet of 6-inch, and about 100 feet of 4-inch, special wrought iron pipe.

The railroad is 40-inch gauge and has an average grade of 1.2 per cent. and a maximum grade of 2.4 per cent. in favor of the loaded cars, the road being almost straight except for two curves of 70 feet radius, where it passes from No. 1 south main entry to No. 2 south main entry, and one curve of 30 feet radius. The rails are 40-pound steel, laid on 5x7 ties. The locomotive hauls a train of thirty cars, the weight of each car being about 1,200 pounds empty, and 4,200 pounds loaded, a distance of 2,200 feet from foot of slope to the foot of No. 9 southwest butt, and back 3,200 feet to foot of slope, with one charging, making the round trip in from fifteen to twenty minutes, including the time of changing trips and charging. The time required for charging is from one to two minutes. It is expected that this haul will be ultimately increased to 4,500 feet each way. The route is out No. 1 south main entry to the foot of No. 3 southwest butt and then out No. 2 south main entry the remainder of the distance.

The compressor was made by the Ingersoll-Sergeant Drill Company, of New York, and is of the straight line three-stage type. The air is drawn into an intake cylinder twelve inches in diameter and eighteen inches stroke, near the center of the machine, where it is compressed to eighty pounds pressure and delivered hot through an inter-cooler on top of the machine, consisting of an iron casing filled with thin tubes, through which cold water is constantly circulating, in which it is cooled and reaches the second compressing cylinder, eight inches in diameter, in which it is further compressed to about 200 pounds then, sent through a second inter-cooler and finally compressed to its final pressure of 800 pounds per square inch in a third cylinder four inches in diameter, from which it is delivered through a one and one-half inch opening to the pipe line. The sides and heads of the first two cylinders are water jacketed to assist in reducing the

temperature of the air during compression, the third cylinder being entirely immersed in the water box on the end of the machine.

The steam cylinder is sixteen inches in diameter and eighteen inch stroke, provided with the Meyer adjustable cut off valve and directly connected with the three air cylinders, which are all of the same stroke. The steam and air cylinders are all mounted on one solid bed plate with two heavy fly wheels. The capacity of the compressor is 216 cubic feet of free air per minute, compressed from the atmosphere to 800 pounds per square inch. The air is delivered from the compressor through short pieces of 1½ and 2 inch pipe successively, then down the intake fan shaft through 100 feet of 4 inch and 56 feet of 6 inch pipe to a heavy cast iron T, provided with a drip cock to drain off any moisture which may collect in the pipes.

At the top and bottom of the fan shaft, right angle bends of three-feet radius were used instead of L's, to reduce the friction.

From the above-mentioned T, the 6-inch pipe runs to a charging station near the foot of the slope and in the other direction about 2,700 feet along the main hauling road to a second charging station, which is not needed but has been put there for an emergency.

The pipe line acts as a reservoir for the compressor and has a capacity of about 600 cubic feet of air at 800 pounds pressure.

The most of the joints are coupled by an extra heavy wrought iron sleeve, recessed at the ends for caulking with lead or copper. At the charging stations and bends, extra heavy flanged couplings are used. These are male and female and a lead gasket is used to make a tight joint. The pipe was furnished by the American Tube and Iron Works Company, and each joint was tested to 1,700 pounds per square inch at the mill.

The charging stations consist of a flange on the end of the 6-inch pipe, reduced to 2 inches, and a piece of 2-inch pipe on which is placed a heavy gate valve and a Moran right angle flexible coupling, with a sufficient length of extra heavy pipe ending in the end of a quick acting screw coupling to reach the charging pipe of the locomotive, which contains two Moran flexible joints and ends with the other half of the screw coupling, the whole being very flexible and giving considerable latitude in stopping to charge.

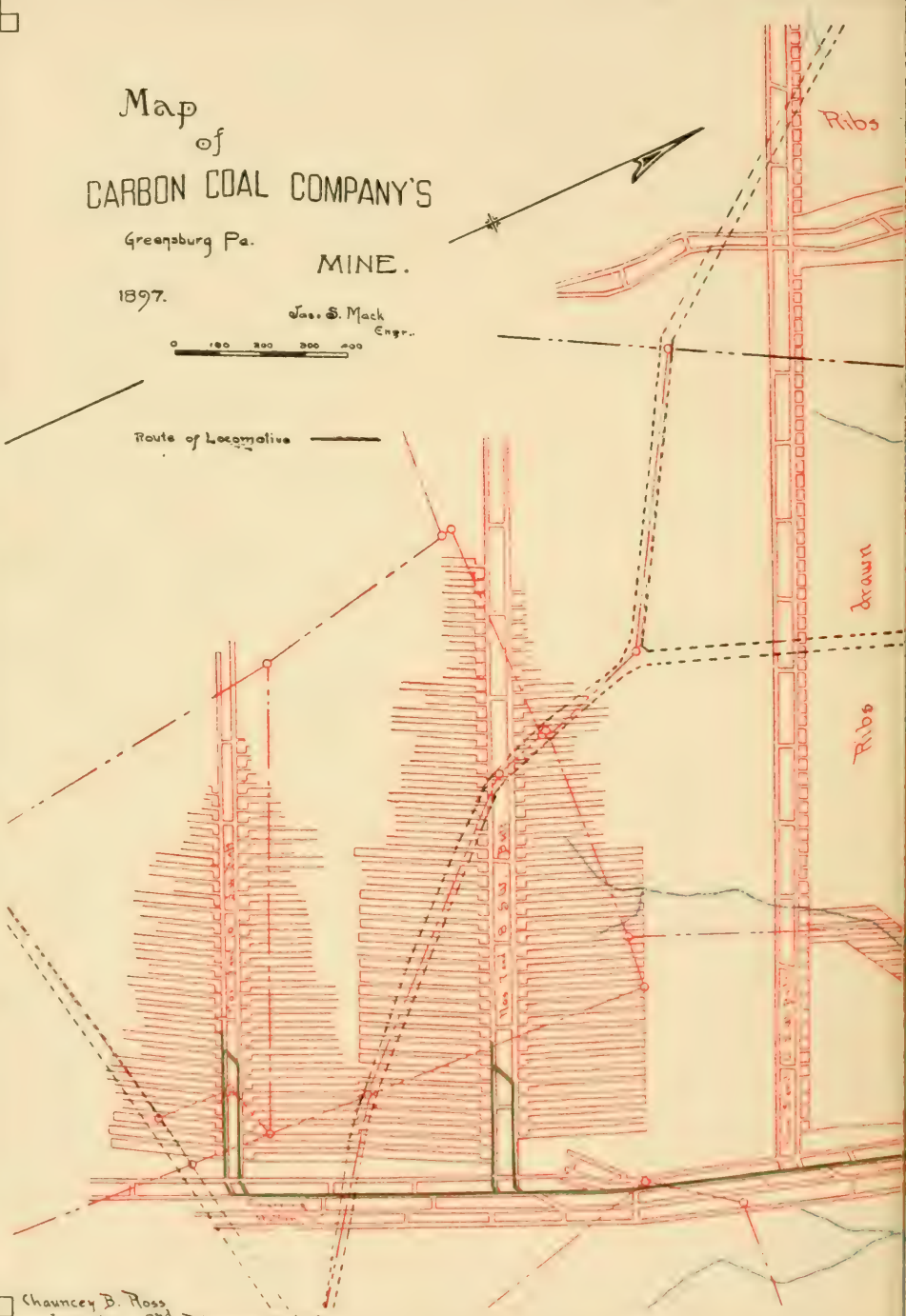
Between the valve on the pipe line and the one on the locomotive is a small bleeder valve to exhaust the air from the coupling before unscrewing the same.

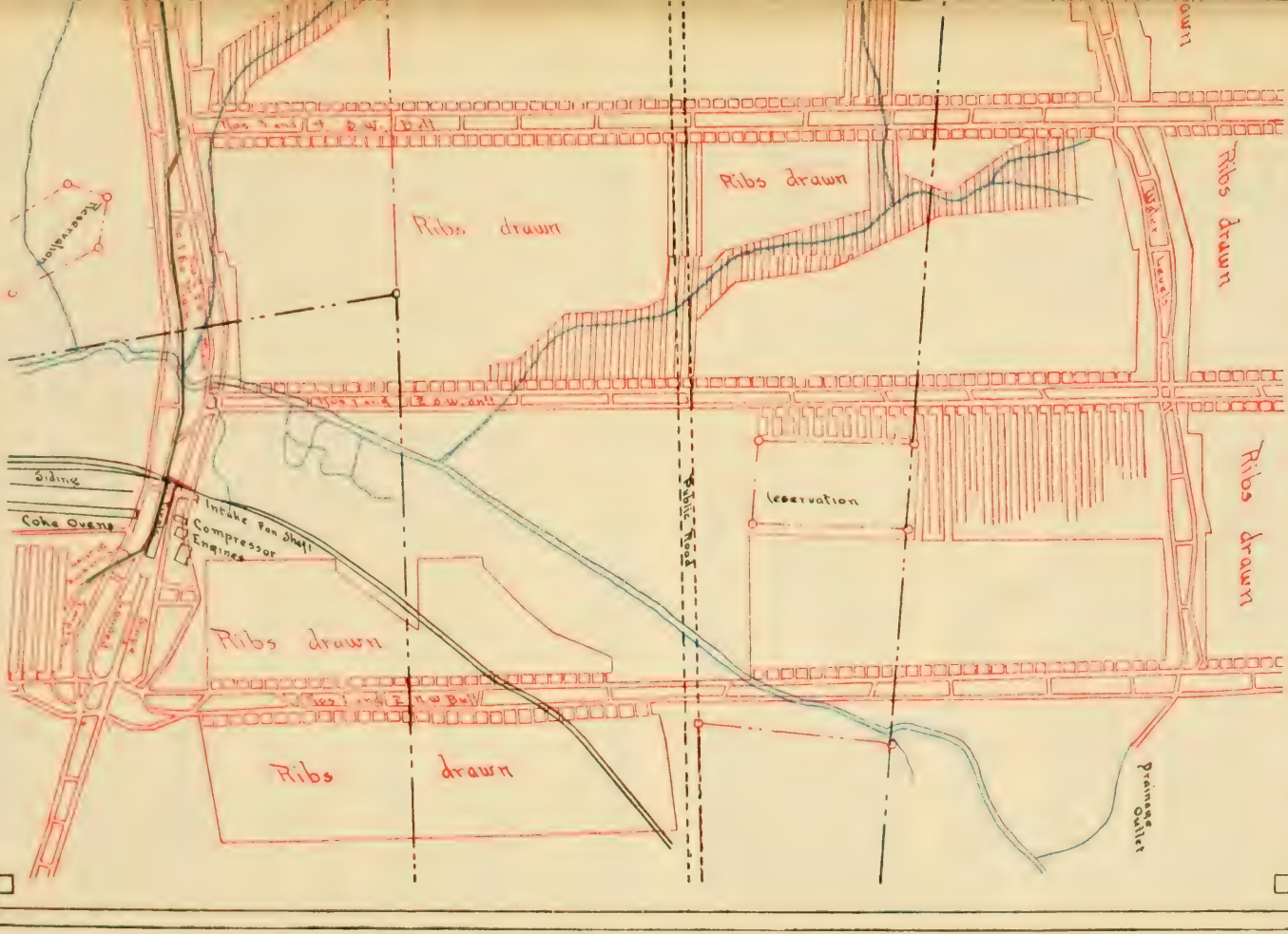
The pneumatic locomotives, shown on the opposite page, was built by H. K. Porter & Co., of Pittsburgh, Pa. It is of the six wheel connected type, having three drivers, 24-inch diameter on each side, the cylinders being 8-inch diameter and 14-inch stroke.

The general dimensions of the locomotive are 17 feet 6 inches long over bumpers, 5 feet 9 inches wide and 5 feet high above the rail.

Compressed Air Locomotive.

Cylinders, 8″ diameter by 14″ stroke: Class C—PP.


Map
of
CARBON COAL COMPANY'S
Greensburg Pa.
MINE.
1897.
Jas. S. Mack
Engr.
0 100 200 300 400
Route of Locomotive
Ribs
Drawn
Ribs
Chauncey B. Ross
Inspector - 2nd Bituminous District


Ribs drawn
Ribs drawn
Ribs drawn
Ribs drawn
Ribs drawn
Ribs drawn
Ribs drawn
Reservation
Reservation
Siding
Coke Ovens
Intake Fan Shaft
Compressor
Engines
Public Road
Drainage Outlet

The tanks for storing the air are 14 feet and 16 feet long, respectively and 29 inches in diameter, holding 130 cubic feet of air and are designed to work under 750 pounds pressure.

The air from the two main tanks is conducted through a reducing valve to an auxiliary reservoir placed below and between them, and from which it passes through the throttle valve to the cylinders. In passing through the reducing valve, the pressure of the air is reduced from 750 pounds per square inch to 140 pounds per square inch. This valve is so constructed that the pressure in the auxiliary can be raised or lowered, depending on the work to be done, by an adjustment requiring but a few moments.

The ports of the engine are specially designed for the use of air, and there has been no trouble experienced from the exhaust freezing up.

The route over which the locomotive travels is shown by the green line on the accompanying map, and at present the empty cars are thrown off at the different butt entries in going in, and the loaded ones taken on when returning. This is made necessary by a scarcity of mine cars and consumes considerable time. More cars are being built, however, and when they are put in service, alternate trips will be made to each entry, which will greatly facilitate the handling of the output.

## Description of Fatal Accidents Which Occurred in the Second Bituminous Mine Inspector's District of Pennsylvania, During the Year of 1897.

John Pipan.—A Hungarian miner, aged 40 years, was instantly killed by a fall of slate while at work in Larimer mine, on February 2.

Kismanis Neizgoda, an Austrian miner, was instantly killed by a fall of coal in Latrobe coal works mine, February 23.

Michael Mets, a Slavish miner, was instantly killed by a fall of coal and slate in Hostetter mine, March 8.

David Franceskino, an Italian miner, was instantly killed by a fall of slate in Westmoreland shaft mine, April 15.

Joseph Agnew, a miner, aged 64 years, was fatally injured in Shaft No. 2, of the Standard mines, on April 24.

Augustino Rolands, an Italian miner, aged 34 years and single, was instantly killed at the Millwood mine, on June 17, by falling down a shaft, a distance of about 100 feet. After receiving the evidence of those who were present when the accident occurred, the coroner decided that a jury was not necessary for the reason that Rolands lost his life by an accident that was unavoidable.

August Socco, an Italian miner, was instantly killed on June 22, about 2.30 P. M., in Shaft No. 1, of Ocean mines, by a fall of slate.

John McDonald, a mine boss, aged 47 years, was instantly killed by being struck by a loaded dilly trip, while it was ascending the slope near the No. 2 flat left, in Mammoth shaft mine, on August 2. Just how the accident occurred is not known, as there was no one present at the time. Mr. McDonald was for many years mine foreman at the Moyer mines, and left there about four weeks previous to his death to accept the foremanship at the Mammoth mine. He is survived by a widow and nine children.

George Dezeyak, a Slavish laborer, at the Alexandria mine, was smothered to death in the coal bin, on July 14, by the coal sliding down on him. The coal is crushed and washed at this mine, which makes it very fine, causing it at time to adhere to the sides of the bin, as was the case when the accident occurred.

James McNaught, an American driver, aged 21 years and single, was instantly killed in Hempfield mine on August 7, by a fall of roof.

Owen Morgan, an Irish miner, aged 39 years, was instantly killed by a fall of coal in Alexandria mine on August 13.

Frederick Wilhelm, an American miner, aged 17 years, was seriously injured by a fall of slate in Arona mine, August 13. He was removed to the Mercy Hospital, at Pittsburgh, two days after the accident and died there on November 2.

Marco Bacic, an Austrian miner, aged 27 years, employed in Larimer mine, was instantly killed by a fall of slate on August 27.

Frank Piershe, an Austrian miner, aged 27 years and single, was seriously injured by a fall of slate on August 17, breaking his back and left ankle. He was removed to the Cottage Hospital, at Connellsville, where he died on September 10, twenty-four days after the accident.

Elmer Shultz, an American, a night pumper, was injured by a piece of rock or wood which fell down the shaft and struck him on the head, crushing his skull, as he was on the cage descending Hecla No. 1 shaft, on the evening of September 8, about 6.30 P. M. He died September 10, two days after the accident. On investigation, I discovered that there was no overhead cover on the cage which the decedent and a man named Jeffrey was on when the accident occurred. I was informed by the officials of the mine and others that persons were not allowed to ride on this cage, it being used exclusively for lowering materials into the mine. Jeffrey stated that he knew it was against the rules of the mine to go down on the cage when he and Shultz boarded it. The air shaft at this place is provided with a stairway for persons going into or out of the mine, when they cannot use the cage which is supplied with an overhead cover. John W. Bailey stated that Shultz traveled the stairway about two weeks while they were engaged in putting new timber in the shaft. I found notices, properly signed and posted, at the top and bottom of the shaft, forbidding

any person to go up or down on the cage which was not provided with an overhead cover. Shultz was familiar with the rules of the mine, having been employed in and about it for several years.

Joseph Duffy, a miner aged 15 years, was instantly killed by a fall of slate in the Alexandria mine on September 21. The coroner held an inquest and a verdict of accidental death was rendered.

On October 14 Jacob Kupsley, a Slavish miner in Mammoth shaft mine, was injured by a wagon running over his right leg below the knee, crushing it so badly that he died on the afternoon of the same day.

Alexander Metz, an American miner, 40 years of age, was instantly killed in Strickler mine, on October 26, by a fall of "horse-back." A. J. Saylor, who was injured by the same fall, stated, at the investigation, that he considered the place perfectly safe and well timbered, and G. W. Pike, the driver who hauled a wagon from there about twenty-five minutes before the accident, said the same.

Marshall Major, an American miner, was instantly killed at Isabella Furnace mine by a fall of slate and rock, while at work on room pillar No. 19 on third cross of Martin's entry, November 6.

John Krackan, a German miner, was instantly killed in Penn Gas No. 1 mine, November 6, by a fall of slate.

William Leasure, an American miner, was fatally injured by a fall of slate in Sandy Creek mine on November 16, and died on the 23d of the same month. The coroner held an inquest and a verdict of accidental death was rendered. Deceased was 17 years of age.

TABLE No. 1.—Showing Location, etc., of Collieries in the Second Bituminous District 1897.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Alexandria, | Alexandria Coal and Coke Co., | Westmoreland, | Thomas Donohoe, | Greensburg. |
| Arona, | Arona Gas Coal Co., | Westmoreland, | Harry F. Bovard, | Darragh. |
| Atlantic, | Atlantic Crushed Coke Co., | Westmoreland, | H. C. Burket, | Greensburg. |
| Burrell, | Burrell Coal Co., | Indiana, | Thomas Maher, | Blairsville. |
| Calumet, | Calumet Coal Co., | Westmoreland, | R. O. Thomas, | Calumet. |
| Claridge, | Claridge Gas Coal Co., | Westmoreland, | J. Howard Patton, | Greensburg. |
| Carbon, | Carbon Coal & Coke Co., | Westmoreland, | Wm. M. Singer, | Greensburg. |
| Central, | H. C. Frick Coke Co., | Westmoreland, | Charles Walters, | Feree. |
| Denmark, | Manor Gas Coal Co., | Westmoreland, | A. P. Cameron, | Claridge. |
| Derry, | Derry Coal & Coke Co., | Westmoreland, | E. F. Saxman, | Latrobe. |
| Duquesne, | Corey Coal Co., | Allegheny, | W. L. Dixson, | 15 Brushton Ave., P'b'g. |
| Export, | Westmoreland Gas Coal Co., | Westmoreland, | A. N. Humphreys, | Irwin. |
| Greensburg No. 1, | Greensburg Coal Co., | Westmoreland, | Thomas L. Jones, | Greensburg. |
| Greensburg No. 2, | Greensburg Coal Co., | Westmoreland, | Thomas L. Jones, | Greensburg. |
| Graff, | Blairsville Coke Co., Limited, | Indiana, | William Hamer, | Blairsville. |
| Graceton No. 1, | McCreary Coke Co., | Indiana, | Harry McCreary, | Graceton. |
| Graceton No. 2, | McCreary Coke Co., | Indiana, | Harry McCreary, | Graceton. |
| Hecla No. 1, | The Hecla Coke Co., | Westmoreland, | Thomas Laird, | South West. |
| Hecla No. 2, | The Hecla Coke Co., | Westmoreland, | Thomas Laird, | South West. |
| Hempfield, | Hempfield Coal Co., | Westmoreland, | Thomas L. Jones, | Greensburg. |
| Hostetter, | Hostetter Connellsville Coke Co., | Westmoreland, | John T. Rush, | Whitney. |
| Hampton, | Hampton Coal Co., | Allegheny, | John S. Stewart, | Edgewood Park. |
| Humphreys, | Bessemer Coke Co., | Westmoreland, | Wm. M. Hart, | Pleasant Unity. |
| Isabella Furnace, | Isabella Furnace Co., | Westmoreland, | W. C. Grist, | Blairsville. |
| Jamison, | Jamison Coal Co., | Westmoreland, | Thomas L. Jamison, | Greensburg. |
| Lockport, | Bolivar Coal and Coke Co., | Westmoreland, | George H. Richards, | Lockport. |
| Lucesco, | Bell Coal Co., | Westmoreland, | | |
| Latrobe Coal Works, | Latrobe Coal Co., | Westmoreland, | D. W. Jones, | Latrobe. |
| Loyalhanna No. 1, | Loyalhanna Coal & Coke Co., | Westmoreland, | R. M. McKinney, | Latrobe. |
| Loyalhanna No. 2, | Loyalhanna Coal & Coke Co., | Westmoreland, | R. M. McKinney, | Latrobe. |
| Larimer No. 4, | Westmoreland Gas Coal Co., | Westmoreland, | A. N. Humphreys, | Irwin. |
| Millwood Shaft, | Millwood Coal and Coke Co., | Westmoreland, | E. B. Kimmell, | Millwood. |
| Madison, | Madison Gas Coal Co., | Westmoreland, | Thomas Donohoe, Jr., | Darragh. |
| Mammoth Shaft, | H. C. Frick Coke Co., | Westmoreland, | Charles J. Coll, | Mammoth. |
| Mammoth Slope, | H. C. Frick Coke Co., | Westmoreland, | Charles J. Coll, | Mammoth. |
| Monastery, | H. C. Frick Coke Co., | Westmoreland, | A. F. Downing, | Latrobe. |
| M. Saxman, | M. Saxman, Sr., & Co., | Westmoreland, | Frank Kierman, | Latrobe. |
| Mitchell, | Indiana Coal Co., | Indiana, | | |
| Maher No. 2, | Maher Coal and Coke Co., | Indiana, | Thomas Maher, | Blairsville. |
| Mutual, | H. C. Frick Coke Co., | Westmoreland, | John M. White, | United. |
| Marguerite, | Standard Connellsville Coke Co., | Westmoreland, | Robert Gordon, | Greensburg. |
| No. 1 A Shaft, | Southwest Connellsville Coke Co., | Westmoreland, | Wm. S. Ramsay, | Mt. Pleasant. |
| No. 1 B Shaft, | Southwest Connellsville Coke Co., | Westmoreland, | Wm. S. Ramsay, | Mt. Pleasant. |
| No. 2, | Southwest Connellsville Coke Co., | Westmoreland, | J. L. Finch, | Mt. Pleasant. |
| No. 3, | Southwest Connellsville Coke Co., | Westmoreland, | J. M. Whitelaw, | Alverton. |
| No. 4, | Southwest Connellsville Coke Co., | Westmoreland, | J. M. Whitelaw, | Alverton. |

| | | | | |
|---|---|---|---|---|
| Ocean No. 1, | Ocean Coal Co., | Westmoreland, | F. I. Kimball, | Herminie. |
| Oak Hill No. 4, | N. Y. and Cleveland Gas Coal Co., | Allegheny, | T. B. De Armit, | Turtle Creek. |
| Ocean, | Gottlieb Voegele, | Allegheny, | Gottlieb Voegele, | Wilkinsburg. |
| Plum Creek, | N. Y. and Cleveland Gas Coal Co., | Allegheny, | T. B. De Armit, | Turtle Creek. |
| Penn Gas No. 1, | Penn Gas Coal Co., | Westmoreland, | John F. Wolf, | Irwin. |
| Penn Gas No. 2, | Penn Gas Coal Co., | Westmoreland, | John F. Wolf, | Irwin. |
| Penn Gas No. 3, | Penn Gas Coal Co., | Westmoreland, | John F. Wolf, | Irwin. |
| Penn Gas No. 4, | Penn Gas Coal Co., | Westmoreland, | John F. Wolf, | Irwin. |
| Penn Gas Coal Run, | Penn Gas Coal Co., | Westmoreland, | John F. Wolf, | Irwin. |
| Penn Gas, | Penn Gas Coal Co., | Westmoreland, | John F. Wolf, | Irwin. |
| Pleasant Valley, | N. Y. and Cleveland Gas Coal Co., | Westmoreland, | T. B. De Armit, | Turtle Creek. |
| Penn Manor, | Penn Manor Shaft Co., | Westmoreland, | Samuel Ferguson, | Harrison City. |
| Pandora, | Loyalhanna Coal and Coke Co., | Westmoreland, | R. M. McKinney, | Latrobe. |
| Puritan of Baggaley, | Puritan Coke Co., | Westmoreland, | John McFadyen, | Latrobe. |
| S. H. Smith, | The Ligonier Coal Co., | Westmoreland, | Daniel Craig, | Latrobe. |
| Strickler, | J. A. Strickler Coke Co., Limited, | Westmoreland, | J. A. Strickler, | Wilkinsburg. |
| Standard No. 2, | H. C. Frick Coke Co., | Westmoreland, | Robert Ramsay, | Mt. Pleasant. |
| Standard Slope, | H. C. Frick Coke Co., | Westmoreland, | Robert Ramsay, | Mt. Pleasant. |
| Saint Clair, | Saint Clair Coal and Coke Co., Limited, | Westmoreland, | W. A. Preston, | Bradenville. |
| Smith's, | Robert Smith, | Indiana, | Robert Smith, | Blairsville. |
| Sandy Creek, | N. Y. and Cleveland Gas Coal Co., | Allegheny, | William Fisher, | White Ash. |
| Spring Hill No. 2, | Spring Hill Gas Coal Co., | Allegheny, | E. W. Boyd, | Turtle Creek. |
| United No. 1, | H. C. Frick Coke Co., | Westmoreland, | John M. White, | United. |
| Whitney, | Hostetter Connellsville Coke Co., | Westmoreland, | John T. Rush, | Whitney. |
| Westmoreland, | Westmoreland Gas Coal Co., | Westmoreland, | A. N. Humphreys, | Irwin. |
| Weinman, | Weinman Brothers, | Allegheny, | Jacob Weinman, | Wilkinsburg. |

TABLE No. 2—Gives the total number of tons of coal mined and tons of coke produced in each Colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Second Bituminous District, for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alexandria, | Westmoreland, | 163,839 | 66,598 | 2,100 | 240 | 54,942 | 250½ | 260 | 3 | ..... | ..... | ..... | 2 | 20 | ..... | 293 |
| Arona, | Westmoreland, | 153,967 | ..... | 530 | 386 | 153,051 | 225 | 190 | 1 | 1 | 50 | ..... | 1 | 9 | ..... | ..... |
| Atlantic, | Westmoreland, | 78,410 | 15,814 | 906 | 600 | 53,183 | 220 | 82 | ..... | ..... | ..... | ..... | 2 | 14 | ..... | 70 |
| Burrell, | Indiana, | 44,276 | ..... | ..... | ..... | 44,276 | 288 | 37 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| Calumet, | Westmoreland, | 97,560 | 68,160 | 1,442 | 677 | ..... | 260 | 157 | ..... | ..... | ..... | ..... | 6 | 27 | ..... | 225 |
| Claridge, | Westmoreland, | 152,931 | ..... | 482 | 471 | 151,978 | 182½ | 188 | ..... | ..... | 30 | 25 | 1 | 10 | ..... | ..... |
| Carbon, | Westmoreland, | 180,756 | 16,495 | 2,682 | 7,452 | 142,796 | 205 | 194 | ..... | 1 | ..... | 25 | 4 | 24 | 1 | 48 |
| Central, | Westmoreland, | 155,601 | 105,534 | 6,064 | ..... | ..... | 265 | 189 | ..... | 3 | ..... | 150 | 8 | 31 | ..... | 301 |
| Denmark, | Westmoreland, | 121,763 | ..... | 2,342 | 535 | 118,886 | 223 | 185 | ..... | 1 | ..... | ..... | 6 | 10 | ..... | ..... |
| Derry, | Westmoreland, | 135,741 | 34,587 | 2,635 | 305 | 80,534 | 217 | 185 | ..... | ..... | ..... | ..... | 3 | 15 | 2 | 182 |
| Duquesne, | Allegheny, | 21,919 | ..... | ..... | ..... | 21,919 | 53 | 163 | ..... | ..... | ..... | ..... | 2 | 13 | 1 | ..... |
| Export, | Westmoreland, | 355,400 | ..... | 436 | 1,664 | 353,300 | 251½ | 521 | ..... | 5 | ..... | ..... | 3 | 15 | ..... | ..... |
| Greensburg No. 1, | Westmoreland, | 109,362 | 789 | 1,080 | 8,304 | 98,925 | 175 | 110 | ..... | 3 | ..... | ..... | 2 | 19 | ..... | 10 |
| Greensburg No. 2, | Westmoreland, | 53,562 | ..... | 502 | ..... | 53,060 | 185 | 58 | ..... | ..... | ..... | ..... | 1 | 4 | ..... | ..... |
| Graff, | Indiana, | 29,519 | ..... | ..... | ..... | 29,519 | 290 | 22 | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 24 |
| Graceton No. 1, | Indiana, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Graceton No. 2, | Indiana, | 36,295 | 16,330 | 310 | 120 | 11,800 | 205 | 115 | ..... | ..... | ..... | 100 | 2 | 14 | ..... | 181 |
| Hecla No. 1, | Westmoreland, | 123,859 | 85,230 | 4,376 | 1,608 | ..... | 257 | 190 | 1 | ..... | ..... | 200 | 8 | 30 | ..... | 272 |
| Hecla No. 2, | Westmoreland, | 170,676 | 121,123 | 4,762 | 1,942 | ..... | 254 | 223 | ..... | ..... | ..... | ..... | 8 | 35 | ..... | 500 |
| Hempfield, | Westmoreland, | 158,992 | ..... | 3,150 | 2,766 | 153,076 | 312 | 140 | 1 | 1 | ..... | ..... | 5 | 28 | ..... | ..... |
| Hostetter, | Westmoreland, | 141,261 | 84,000 | 4,382 | 1,252 | 24,000 | 263 | 184 | 1 | ..... | ..... | ..... | 4 | 15 | ..... | 305 |
| Hampton, | Allegheny, | 53,530 | ..... | 40 | 25,765 | 27,725 | 150 | 88 | ..... | ..... | ..... | ..... | 1 | 8 | ..... | ..... |
| Humphreys, | Westmoreland, | 75,095 | 50,057 | 547 | 75 | 2,500 | 305 | 119 | ..... | ..... | ..... | ..... | 1 | 7 | ..... | 100 |
| Isabella Furnace, | Westmoreland, | 180,000 | 102,000 | 8,000 | 1,000 | ..... | 207 | 225 | 1 | ..... | ..... | ..... | 8 | 32 | ..... | 252 |
| Jamison, | Westmoreland, | 83,461 | 35,000 | 1,800 | 1,200 | 31,461 | 235 | 179 | ..... | ..... | 190 | 750 | 4 | 13 | ..... | 120 |
| Lockport, | Westmoreland, | 6,500 | 500 | ..... | 75 | 5,925 | 180 | 14 | ..... | ..... | 125 | ..... | 1 | 2 | ..... | 53 |
| Lucesco, | Westmoreland, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Latrobe Coal Works, | Westmoreland, | 204,676 | 46,555 | 2,769 | 2,944 | 128,476 | 248 | 223 | 1 | 1 | 10 | 100 | 5 | 16 | ..... | 136 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Loyalhanna No. 1, | Westmoreland, | 255,775 | 14,165 | 1,805 | 2,127 | 224,001 | 268 | 289 | | 5 | | 600 | 4 | 25 | 136 |
| Loyalhanna No. 2, | Westmoreland, | 11,930 | | 3,123 | 4,089 | 4,718 | 306 | 29 | | | | | 4 | 3 | |
| Larimer No. 4, | Westmoreland, | 370,526 | | 2,708 | 4,070 | 363,748 | 243 | 543 | 2 | | | | 5 | 21 | |
| Millwood Shaft, | Westmoreland, | 101,747 | | 2,020 | 220 | 98,507 | 300 | 141 | 1 | 1 | 120 | | 6 | 14 | |
| Madison, | **Westmoreland,** | 170,311 | | 1,950 | 300 | 168,061 | 236 | 233 | | 3 | | | 2 | 18 | |
| Mammoth Shaft, | Westmoreland, | 286,700 | 192,710 | 10,985 | 1,147 | | 260 | 340 | 2 | 2 | | | 16 | 36 | 510 |
| Mammoth Slope, | Westmoreland, | | | | | | | | | | | | | | |
| Monastery, | Westmoreland, | 107,546 | | 4,883 | 448 | 102,215 | 232 | 119 | | | 6 | 250 | 11 | 11 | 208 |
| M. Saxman, | Westmoreland, | 44,599 | 16,699 | 1,825 | | 32,000 | 244 | 102 | | | | | 2 | 10 | 60 |
| Mitchell, | Indiana, | | | | | | | | | | | | | | |
| Maher No. 2, | Indiana, | 45,470 | | | | 45,470 | 284 | 36 | | | | | | 3 | |
| Mutual, | Westmoreland, | 12,053 | 8,902 | | 102 | | 69 | 76 | | | | | 2 | 9 | 154 |
| Marguerite, | Westmoreland, | 16,107 | 11,450 | 26 | 65 | | 52 | 101 | | | | 240 | 1 | 9 | 100 |
| No. 1 A Shaft, | Westmoreland, | 671,303 | 439,784 | 10,539 | 1,088 | | 311 | 680 | | | | 237 | 19 | 48 | 620 |
| No. 1 B Shaft, | Westmoreland, | | | | | | | | | | | | | | |
| No. 2, | Westmoreland, | 273,464 | 180,863 | 1,733 | 437 | | 311 | 273 | | | | | 2 | 33 | 250 |
| No. 3, | Westmoreland, | 224,422 | 129,775 | 29,354 | 406 | | 311 | 254 | | 3 | | 110 | 8 | 18 | 180 |
| No. 4, | Westmoreland, | 152,393 | 100,885 | 812 | 253 | | 311 | 158 | | | | | 2 | 11 | 151 |
| Ocean No. 1, | Westmoreland, | 248,939 | | 4,313 | 1,391 | 243,236 | 217 | 325 | 1 | 1 | | | 3 | 45 | |
| Oak Hill No. 4, | Allegheny, | 373,779 | | 2,300 | 1,040 | 372,439 | 285¾ | 443 | | 2 | | | 2 | 30 | |
| Ocean, | Allegheny, | 5,461 | | | 5,461 | | 308 | 12 | | | | | | 2 | |
| Plum Creek, | Allegheny, | 254,148 | | 3,600 | | 250,548 | 258¾ | 257 | | | | | | 14 | 1 |
| Penn Gas No. 1, | Westmoreland, | 214,662 | | 4,533 | 1,476 | 208,653 | 239½ | 278 | 1 | 1 | | | 8 | 31 | |
| Penn Gas No. 2, | Westmoreland, | 212,207 | | 5,126 | 2,282 | 204,799 | 234 | 321 | | 2 | | | 8 | 37 | |
| Penn Gas No. 3, | Westmoreland, | | | | | | | | | | | | | | |
| Penn Gas No. 4, | Westmoreland, | 75,919 | | 986 | 458 | 74,475 | 90 | 247 | | | | | 3 | 25 | |
| Penn Gas Coal Run, | Westmoreland, | 95,486 | | 150 | 528 | 94,808 | 230¾ | 133 | | 1 | | | | 11 | |
| Penn Gas, | Westmoreland, | | | | | | | | | | | | | | |
| Pleasant Valley, | Westmoreland, | 108,666 | | | | 108,666 | 171 | 170 | 1 | | | | | 10 | |
| Penn Manor, | Westmoreland, | 41,671 | | 932 | 527 | 40,212 | 179 | 81 | | 2 | | | 4 | 5 | 43 |
| Pandora, | Westmoreland, | 10,501 | | 298 | | 10,203 | 37 | 120 | | | | | 4 | 7 | |
| Puritan or Baggaley, | Westmoreland, | 72,100 | 46,500 | 1,648 | | | 103 | 186 | | | | | 2 | 10 | 276 |
| S. H. Smith, | Westmoreland, | 34,786 | | | | 34,786 | 240 | 34 | | | | | | 3 | |
| Strickler, | Westmoreland, | 94,271 | | 1,100 | 40 | 93,131 | 279 | 55 | 1 | 1 | | | 3 | 7 | |
| Standard No. 2 Shaft, | Westmoreland, | 448,506 | 296,694 | 11,817 | 864 | | 267 | 529 | 1 | 4 | | 420 | 21 | 65 | 905 |
| Standard Slope, | Westmoreland, | | | | | | | | | | | | | | |
| Saint Clair, | Westmoreland, | 82,119 | 26,293 | 1,726 | 702 | 36,148 | 194 | 125 | | 2 | | | 6 | 13 | 128 |
| Smith's, | Indiana, | 54,116 | | | 1,366 | 52,750 | 300 | 49 | | 1 | | | | 5 | |
| Sandy Creek, | Allegheny, | 148,028 | | 768 | 555 | 146,705 | 208¼ | 253 | 1 | 1 | | | 2 | 24 | 1 |
| Spring Hill No. 2, | Allegheny, | 72,955 | | 139 | 2,262 | 40,554 | 315 | 114 | | | 2 | | 1 | 8 | 1 |
| United No. 1, | Westmoreland, | 160,805 | 108,518 | 3,245 | 1,308 | | 261 | 220 | | 2 | | | 8 | 26 | 300 |
| Whitney, | Westmoreland, | 142,180 | 83,000 | 6,000 | 1,200 | 25,000 | 263 | 187 | | 2 | | | 4 | 15 | 302 |
| Westmoreland Shaft, | Westmoreland, | 341,982 | | 8,531 | 2,191 | 331,260 | 259 | 448 | 1 | | | | 14 | 22 | |
| Weinman, | Allegheny, | 6,813 | | | 6,813 | | 278 | 12 | | | | | | 2 | |
| Westmoreland Car Shops, | Westmoreland, | | | | | | 308 | **57** | | | | | 1 | | 300 |
| Larimer Coke Plant, | Westmoreland, | | | | | | | | | | | | | | |
| Total, | | 9,134,797 | 2,505,350 | 181,312 | 104,597 | 5,147,825 | 15,170½ | 12,272 | 21 | 52 | 533 | 3,167 | 266 | 1,102 | 7 | 7,695 |

TABLE No. 3—Showing the number of each class of Employes at each Colliery in the Second Bituminous District, during the year 1897.

| Names of Collieries. | Occupation of Persons Employed Inside. | | | | | | | | Occupation of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Alexandria, | 1 | ..... | 120 | ..... | 12 | 6 | 11 | 150 | 2 | 4 | 5 | ..... | 95 | 4 | 110 | 260 |
| Arona, | 1 | ..... | 156 | ..... | 10 | 3 | 3 | 173 | ..... | 2 | 2 | ..... | 10 | 2 | 17 | 190 |
| Atlantic, | 1 | ..... | 46 | ..... | 8 | 3 | 2 | 60 | 1 | 1 | 3 | ..... | 15 | 2 | 22 | 82 |
| Burrell, | 1 | ..... | 31 | ..... | 2 | ..... | ..... | 34 | ..... | ..... | ..... | ..... | 2 | 1 | 3 | 37 |
| Calumet, | 1 | 2 | 70 | ..... | 9 | 3 | 7 | 91 | 1 | 2 | 4 | ..... | 57 | 2 | 66 | 157 |
| Claridge, | 1 | 1 | 142 | ..... | 11 | 5 | 6 | 165 | ..... | 2 | 2 | ..... | 17 | 2 | 23 | 188 |
| Carbon, | 1 | ..... | 136 | ..... | 10 | ..... | 7 | 154 | 1 | 4 | 4 | ..... | 28 | 3 | 40 | 194 |
| Central, | 1 | 2 | 94 | ..... | 12 | 1 | 5 | 115 | 1 | 5 | 5 | ..... | 61 | 2 | 74 | 189 |
| Denmark, | 1 | 1 | 145 | ..... | 10 | 5 | 8 | 170 | ..... | 2 | 3 | ..... | 8 | 2 | 15 | 185 |
| Derry, | 1 | 2 | 110 | ..... | 12 | 8 | 8 | 141 | ..... | 2 | 4 | ..... | 35 | 3 | 44 | 185 |
| Duquesne, | 1 | ..... | 126 | ..... | 6 | 4 | 6 | 143 | 1 | 2 | 4 | ..... | 12 | 1 | 20 | 163 |
| Expert, | 1 | 2 | 436 | ..... | 14 | 13 | 13 | 479 | 1 | 3 | 3 | 2 | 31 | 2 | 42 | 521 |
| Greensburg No. 1, | 1 | ..... | 67 | ..... | 14 | 4 | 4 | 90 | ..... | 4 | 2 | ..... | 13 | 1 | 20 | 110 |
| Greensburg No. 2, | 1 | ..... | 44 | ..... | 4 | ..... | 2 | 51 | ..... | ..... | 1 | ..... | 5 | 1 | 7 | 58 |
| Graff, | 1 | ..... | 16 | ..... | 2 | ..... | 1 | 20 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 22 |
| Graceton No. 1, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Graceton No. 2, | 1 | ..... | 70 | ..... | 10 | ..... | 4 | 85 | 1 | 1 | 3 | ..... | 23 | 2 | 30 | 115 |
| Heela No. 1, | 1 | 1 | 82 | ..... | 13 | 5 | 11 | 114 | 2 | 4 | 6 | ..... | 61 | 3 | 76 | 190 |
| Heela No. 2, | 1 | 2 | 99 | ..... | 13 | 6 | 8 | 129 | 2 | 4 | 5 | ..... | 80 | 3 | 94 | 223 |
| Hempeld, | 2 | ..... | 100 | ..... | 12 | 1 | 3 | 118 | 1 | 4 | 5 | ..... | 11 | 1 | 22 | 140 |
| Hostetter, | 1 | 2 | 101 | ..... | 7 | 2 | 9 | 122 | 1 | 4 | 4 | ..... | 51 | 2 | 62 | 184 |
| Hampton, | 1 | 1 | 66 | ..... | 4 | 4 | 2 | 78 | 1 | 1 | 1 | ..... | 4 | 3 | 10 | 88 |
| Humphreys, | 1 | ..... | 50 | ..... | 5 | 1 | 2 | 59 | 1 | 2 | 1 | ..... | 54 | 2 | 60 | 119 |
| Isabella Furnace, | 2 | ..... | 100 | ..... | 20 | 5 | 17 | 144 | 2 | 6 | 6 | ..... | 65 | 2 | 81 | 225 |
| Jamison, | 1 | ..... | 75 | ..... | 9 | 1 | 18 | 104 | 1 | 3 | 3 | ..... | 66 | 2 | 75 | 179 |
| Lucknert, | 1 | ..... | 8 | ..... | 1 | ..... | ..... | 10 | ..... | ..... | ..... | 1 | 2 | 1 | 4 | 14 |
| Lueseo, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Latrobe Coal Works, | 1 | | 146 | | 15 | 4 | 6 | 172 | | 4 | 5 | | 39 | 3 | 51 | 223 |
| Loyalhanna No. 1, | 1 | 2 | 195 | | 25 | 7 | 16 | 246 | 2 | 4 | 3 | 4 | 28 | 2 | 43 | 289 |
| Loyalhanna No. 2, | | | 14 | | 2 | | 5 | 21 | 1 | | 4 | 1 | 1 | 1 | 8 | 29 |
| Larimer No. 4, | 1 | 2 | 450 | | 21 | 17 | 18 | 509 | 1 | 3 | 3 | 2 | 23 | 2 | 34 | 543 |
| Millwood Shaft, | 1 | 1 | 96 | | 14 | 3 | 5 | 120 | | 3 | 3 | 1 | 13 | 1 | 21 | 141 |
| Madison, | 2 | | 175 | | 14 | 6 | 8 | 205 | 1 | 4 | 3 | | 18 | 2 | 28 | 233 |
| Mammoth Shaft, | 1 | 3 | 173 | | 14 | 3 | 16 | 210 | 1 | 6 | 7 | | 113 | 3 | 130 | 340 |
| Mammoth Slope, | | | | | | | | | | | | | | | | |
| Monastery, | 1 | 1 | 70 | | 13 | 4 | 12 | 101 | 1 | 2 | 8 | | 5 | 2 | 18 | 119 |
| M. Saxman, | 1 | | 54 | | 8 | 4 | 5 | 72 | 1 | 2 | 1 | | 24 | 2 | 30 | 102 |
| Mitchell, | | | | | | | | | | | | | | | | |
| Maher No. 2, | 1 | | 32 | | 2 | | | 35 | | | | | | 1 | 1 | 36 |
| Mutual, | 1 | 1 | 40 | | 4 | 1 | 1 | 48 | 1 | 1 | 1 | | 23 | 2 | 28 | 76 |
| Marguerite, | 1 | | 50 | | 2 | 2 | 2 | 64 | 1 | 2 | 2 | | 28 | 4 | 37 | 101 |
| No. 1 A Shaft, | 2 | 3 | 304 | | 23 | 3 | 35 | 370 | 2 | 6 | 15 | | 282 | 5 | 310 | 680 |
| No. 1 B Shaft, | | | | | | | | | | | | | | | | |
| No. 2, | 1 | 1 | 120 | | 13 | 1 | 10 | 146 | 1 | 2 | 3 | | 119 | 2 | 127 | 273 |
| No. 3, | 1 | 1 | 114 | | 12 | | 20 | 148 | 1 | 3 | 4 | 1 | 95 | 2 | 106 | 254 |
| No. 4, | 1 | 1 | 71 | | 5 | | 9 | 87 | 1 | 2 | 3 | | 64 | 1 | 71 | 158 |
| Ocean No. 1, | 1 | 3 | 247 | | 28 | 5 | 14 | 298 | 1 | 4 | 4 | 2 | 13 | 3 | 27 | 325 |
| Oak Hill No. 4, | 2 | | 360 | | 28 | 14 | 9 | 413 | 1 | 2 | 2 | | 22 | 3 | 30 | 443 |
| Ocean, | 1 | | 7 | | 1 | | | 9 | | | | | 3 | 1 | 4 | 13 |
| Plum Creek, | 2 | | 193 | | 13 | 8 | 8 | 224 | | 6 | 2 | | 23 | 2 | 33 | 257 |
| Penn Gas No. 1, | 1 | 3 | 210 | | 23 | 4 | 9 | 250 | 1 | 3 | 4 | 2 | 18 | | 28 | 278 |
| Penn Gas No. 2, | 1 | 3 | 241 | | 27 | 5 | 10 | 287 | 1 | 5 | 4 | 2 | 22 | | 34 | 321 |
| Penn Gas No. 3, | | | | | | | | | | | | | | | | |
| Penn Gas No. 4, | 1 | 2 | 186 | | 21 | 2 | 6 | 218 | 1 | 3 | 3 | 1 | 21 | | 29 | 247 |
| Penn Gas Coal Run, | 1 | 1 | 105 | | 11 | 4 | 3 | 125 | 1 | 2 | | | 5 | | 8 | 133 |
| Penn Gas, | | | | | | | | | | | | | | | | |
| Pleasant Valley, | 1 | 1 | 130 | | 10 | 3 | 5 | 150 | | 2 | | | 17 | 1 | 20 | 170 |
| Penn Manor, | 1 | 1 | 60 | | 4 | 1 | 2 | 69 | | 1 | 3 | | 7 | 1 | 12 | 81 |
| Pandora, | 1 | 1 | 90 | | 6 | 2 | 8 | 108 | 1 | 1 | 3 | 2 | 3 | 2 | 12 | 120 |
| Puritan or Baggaley, | 1 | 1 | 110 | | 10 | 4 | 2 | 128 | 4 | 5 | 6 | | 35 | 8 | 58 | 186 |
| S. H. Smith, | 1 | | 28 | | 2 | 1 | | 32 | | | | | 1 | 1 | 2 | 34 |
| Strickler, | 1 | | 38 | | 5 | 1 | 1 | 46 | 1 | 1 | 2 | | 5 | | 9 | 55 |
| Standard No. 2 Shaft, | 1 | 4 | 241 | | 17 | 7 | 30 | 300 | 1 | 8 | 11 | | 205 | 4 | 229 | 529 |
| Standard Slope, | | | | | | | | | | | | | | | | |
| Saint Clair, | 1 | | 72 | | 5 | 4 | 4 | 86 | 1 | 2 | 4 | | 31 | 2 | 40 | 125 |
| Smith's, | 1 | | 40 | | 4 | | 3 | 48 | | | | | | 1 | 1 | 49 |
| Sandy Creek, | 1 | | 190 | | 16 | 2 | 8 | 217 | | 7 | 4 | | 23 | 2 | 36 | 253 |
| Spring Hill No. 2, | 2 | | 82 | | 7 | 2 | 2 | 95 | | 2 | 4 | | 8 | 5 | 19 | 114 |
| United No. 1, | 1 | 2 | 100 | | 14 | 3 | 10 | 130 | 1 | 4 | 5 | | 78 | 2 | 90 | 220 |
| Whitney, | 1 | 2 | 106 | | 8 | 1 | 9 | 127 | 1 | 3 | 5 | | 49 | 2 | 60 | 187 |
| Westmoreland, | 2 | 3 | 370 | | 22 | 10 | 14 | 401 | 1 | 4 | 9 | 2 | 19 | 2 | 37 | 448 |
| Weinman, | 1 | | 10 | | 1 | | | 12 | | | | | | | | 12 |
| Westmoreland Car Shops, | | | | | | | | | 1 | 21 | 1 | | 34 | | 57 | 57 |
| Total, | 71 | 59 | 7,791 | | 707 | 217 | 481 | 9,326 | 53 | 192 | 218 | 23 | 2,322 | 127 | 2,946 | 12,272 |

TABLE No. 4—List of Fatal Accidents that occurred in and about the Mines of the Second Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Feb. 2, | John Pipan, | Miner, | 40 | M. | 2 | Larimer No. 4, | Westmoreland, | Instantly killed by a fall of slate. |
| 23, | Kismansis Neisgoda, | Miner, | 33 | M. | 2 | Latrobe Coal Works, | Westmoreland, | Instantly killed by a fall of coal. |
| Mar. 8, | Michael Metz, | Miner, | 27 | M. | | Hostetter, | Westmoreland, | Instantly killed by a fall of coal and slate. |
| April 15, | David Franceskino, | Miner, | 47 | M. | 3 | Westmoreland Shaft, | Westmoreland, | Instantly killed by a fall of slate. |
| 24, | Joseph Agnew, | Miner, | 64 | M. | | Standard Shaft No. 2, | Westmoreland, | Injured by being caught between a door post and wagon; died April 30. |
| June 17, | August Rolando, | Miner, | 34 | S. | | Millwood Shaft, | Westmoreland, | Instantly killed by falling down shaft, while ascending the same on the cage. |
| 22, | August Succo, | Miner, | 36 | M. | 1 | Ocean Shaft No. 1, | Westmoreland, | Instantly killed by a fall of slate. |
| July 14, | George Dzeyak, | Laborer, | 26 | S. | | Alexandria, | Westmoreland, | Smothered to death in coal bin. |
| Aug. 2, | John McDonald, | Mine foreman, | 47 | M. | 9 | Mammoth Shaft, | Westmoreland, | Instantly killed by being caught by the Dilly trip. |
| 7, | James McNaught, | Driver, | 21 | S. | | Hempfield, | Westmoreland, | Instantly killed by a fall of roof. |
| 13, | Frederick Wilhelm, | Miner, | 17 | S. | | Arona, | Westmoreland, | Injured by a fall of slate; died Nov. 2. |
| 13, | Owen Morgan, | Miner, | 39 | M. | 6 | Alexandria, | Westmoreland, | Instantly killed by a fall of coal. |
| 17, | Frank Piershe, | Miner, | 27 | S. | | Pleasant Valley, | Westmoreland, | Injured by a fall of slate; died Sept. 10. |
| 27, | Marco Bacco, | Miner, | 27 | M. | 1 | Larimer No. 4, | Westmoreland, | Instantly killed by a fall of slate. |
| Sept. 8 | Elmer Shultz, | Pumper, | 30 | M. | 2 | Hecla No. 1, | | Injured by material falling down shaft, striking him on the head and crushing his skull; died Sept. 10. |
| 21, | Joseph Duffy, | Miner, | 15 | S. | | Alexandria, | Westmoreland, | Instantly killed by a fall of slate. |
| Oct. 14, | Jacob Kupskey, | Miner, | 33 | M. | 4 | Mammoth Shaft, | Westmoreland, | Fatally injured by wagon running over his leg. |
| 26, | Alexander Metz, | Miner, | 41 | W. | 2 | Strickler, | Westmoreland, | Instantly killed by a fall of horse-back. |
| Nov. 6, | Marshall Major, | Miner, | 19 | S. | | Isabella Furnace, | Westmoreland, | Instantly killed by a fall of roof. |
| 6, | John Krackan, | Miner, | 35 | M. | 1 | Penn Gas No. 1, | Westmoreland, | Instantly killed by a fall of slate. |
| 16, | William Leasure, | Miner, | 17 | | | Sandy Creek, | Allegheny, | Injured by a fall of slate; died Nov. 23. |

TABLE No. 5—List of Non-Fatal Accidents that occurred in and ab out the Mines of the Second Bituminous District, for the year ending Dece mber 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Jan. 27, | George Bolish, ..... | Miner, ..... | 27 | M. | United, ..... | Westmoreland, .... | Collar bone broken and back bruised by a fall of slate. |
| Feb. 1, | Anthony Ginger, ..... | Miner, ..... | 17 | .... | Oak Hill No. 4, ..... | Allegheny, ..... | Compound fracture of thigh bone by a fall of slate. |
| 3, | David King, ..... | Miner, ..... | 40 | M. | Madison, ..... | Westmoreland, .... | Leg broken by a fall of slate. |
| 5, | Patrick Carroll, ..... | Miner, ..... | 56 | S. | Coal Run, ..... | Westmoreland, .... | Injured about head, body and legs by a premature blast. |
| 8, | Logan Oplinger, ..... | Laborer, ..... | 21 | S. | Arona, ..... | Westmoreland, .... | Arm broken by being caught between mule and post. |
| 9, | Lewis Block, ..... | Miner, ..... | 30 | M. | Greensburg No. 1, ..... | Westmoreland, .... | Hip dislocated and back bruised by a fall of coal. |
| Mar. 5, | John Engle, ..... | Miner, ..... | 45 | M. | Whitney, ..... | Westmoreland, .... | Leg broken by a fall of coal and slate. |
| 8, | Amos Price, ..... | Driver, ..... | 27 | S. | South West No. 3, ..... | Westmoreland, .... | Three ribs broken by having been caught between wagon and coal pillar. |
| 11, | Martin Menosky, ..... | Miner, ..... | 46 | M. | Central, ..... | Westmoreland, .... | Leg broken by a fall of roof. |
| 15, | Joseph Bolanskey, ..... | Miner, ..... | 35 | M. | South West No. 3, ..... | Westmoreland, .... | Injured about the body by a fall of roof. |
| 22, | Fritz Henell, ..... | Miner, ..... | 52 | M. | Standard Shaft No. 2, ..... | Westmoreland, .... | Small bone in foot broken by a fall of slate. |
| April 24, | Lee L. Palmer, ..... | Miner, ..... | 30 | M. | Greensburg No. 1, ..... | Westmoreland, .. | These men were slightly burned about the face and body by the flame from a shot which ignited while they were tamping it. |
| 24, | James B. Clark, ..... | Miner, ..... | 35 | M. | Greensburg No. 1, ..... | Westmoreland, .. | |
| 30, | Andy Yaddo, ..... | Miner, ..... | 30 | M. | Standard Shaft No. 2, ..... | Westmoreland, .... | One rib broken by a fall of roof. |
| May 4, | Peter Camarina, ..... | Miner, ..... | 28 | S. | Loyalhanna No. 1, ..... | Westmoreland, .... | Leg broken by a fall of slate. |
| June 12, | Ira Baird, ..... | Miner, ..... | 38 | M. | Loyalhanna No. 1, ..... | Westmoreland, .... | Leg broken and otherwise injured by a fall of roof. |
| 15, | Wm. Mathews, ..... | Driver, ..... | .... | .... | South West No. 3, ..... | Westmoreland, .... | Arm broken by being run into by another trip. |
| 22, | Patrick Kelley, ..... | Trapper, ..... | 15 | .... | United, ..... | Westmoreland, .... | Arm crushed by being run over by coal cars, necessitating amputation. |
| 23, | John Cranyak, ..... | Miner, ..... | 38 | M. | Saint Clair, ..... | Westmoreland, .... | Back slightly injured by a fall of slate. |
| July 3, | James Nelson, ..... | Miner, ..... | 37 | M. | Madison, ..... | Westmoreland, .... | Leg broken by being struck by a post. |
| 27, | Baldislow Shelkowski, .. | Miner, ..... | 28 | S. | Export, ..... | Westmoreland, .... | Collar bone and two ribs broken and shoulder fractured by a fall of slate. |

TABLE No 5.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Aug. 1. | Joseph McGinn, | Trapper, | 13 | .... | Export, | Westmoreland, | Small bone broken in left foot by a wagon running upon it. |
| 7. | Michael Galvin, | Miner, | 39 | S. | Hempfield, | Westmoreland, | Finger broken and back slightly injured by a fall of roof. |
| 11. | Antonia Cellnar, | Driver, | 41 | M. | Standard Shaft No. 2, | Westmoreland, | Arm broken and wrist joint dislocated by being caught between wagon and coal pillar. |
| 12. | Harvey Richardson, | Miner, | 17 | .... | Smiths, | Indiana, | Bruised about the body by a fall of slate. |
| 18. | Wm. Robinson, | Driver, | 16 | .... | Loyalhanna, | Westmoreland, | Injured about the stomach and loins by being caught between two wagons. |
| 25. | James Armitage, | Miner, | 42 | M. | Penn Gas No. 2, | Westmoreland, | Back slightly injured by a fall of slate. |
| Sept. 1. | Anthony Shope, | Miner, | 36 | S. | Madison, | Westmoreland, | Leg broken by a fall of rock. |
| 2. | Joseph Gubeck, | Miner, | 27 | S. | Export, | Westmoreland, | Small bone in left ankle broken by a fall of slate. |
| 3. | L. A. Cobb, | Miner, | 36 | M. | Carbon, | Westmoreland, | Leg broken by a fall of slate. |
| 11. | Thomas Crockett, | Miner, | 24 | S. | Latrobe Coal Works, | Westmoreland | Compound fracture of right leg below the knee by being struck by the dilly rope. |
| 18. | Wm. Laird, | Miner, | 42 | M. | Saint Clair, | Westmoreland, | Leg broken by a fall of roof. |
| 18. | Salva Furick, | Miner, | 56 | M. | Whitney, | Westmoreland, | Seriously injured about the body by a fall of slate. |
| 28. | Amzi Struble, | Driver, | 19 | S. | Mammoth Shaft, | Westmoreland, | Leg broken by being caught between wagons. |
| 30. | Owen Panizza, | Miner, | 35 | M. | Mammoth Shaft, | Westmoreland, | Three ribs broken by being caught between wagon and coal pillar. |
| 30. | Samuel C Hins, | Trapper, | 15 | .... | Export, | Westmoreland, | Compound fracture of right arm caused by mine wagons running over it. |
| Oct. 11. | Steve Hamrock, | Miner, | 32 | M. | Central, | Westmoreland, | Three ribs broken by a fall of roof. |
| 12. | Robert Kirkpatrick, | Driver, | 21 | S. | Oak Hill No. 4, | Allegheny, | Leg broken by falling under a trip of wagons. |
| 26. | Jacob Sayler, | Miner, | 28 | M. | Strickler, | Westmoreland, | Injured about back and loins by a fall of "horse-back." |
| 26. | John Shuster, | Miner, | 57 | M. | Denmark, | Westmoreland, | Seriously injured by a fall of "horse-back." |
| Nov. 3. | Samuel Padden, | Miner, | 70 | M. | Penn Manor Shaft, | Westmoreland, | Leg broken by a fall of coal. |
| 6. | William Parsons, | Miner, | 45 | M. | Penn Gas No. 1, | Westmoreland, | Injured about back and loins by a fall of slate. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6, | Mark Riber, ..... | Driver, ..... | 30 | M. | Millwood Shaft, ..... | Westmoreland, .... | Hip dislocated by being struck by a loaded trip after he had lost control of it. |
| 13, | George Outko, ..... | Miner, ..... | 30 | M. | Loyalhanna No. 1, ..... | Westmoreland, .... | Foot crushed by a fall of slate. |
| 13, | John Slaninen, ..... | Miner, ..... | 50 | M. | Loyalhanna No. 1, ..... | Westmoreland, .... | Leg broken and bruised about head and back by a fall of slate. |
| 20, | Jacob Boler, ..... | Miner, ..... | 56 | M. | Penn Manor Shaft, ..... | Westmoreland, .... | Collar bone broken by a fall of coal and slate. |
| 22, | Antonio Gzbroskey, ..... | Miner, ..... | 44 | M. | Export, ..... | Westmoreland, .... | Finger crushed by a fall of slate, necessitating amputation. |
| 26, | Charles Leonard, ..... | Miner, ..... | 16 | .... | Standard Shaft, ..... | Westmoreland, .... | Shoulder dislocated by being caught between wagons and coal pillar. |
| 30, | Michael Chap, ..... | Miner, ..... | 48 | M. | Penn Gas No. 2, ..... | Westmoreland, .... | Hand and shoulder slightly bruised by a fall of coal and slate. |
| Dec. 2, | John Oglan, ..... | Miner, ..... | 14 | .... | Ocean Shaft No. 1, ..... | Westmoreland, .... | Right leg crushed by wagon running over it, necessitating amputation. |
| 11, | Dominick Tamarene, .... | Miner, ..... | 30 | M. | Sandy Creek, ..... | Allegheny, ..... | Bruised about breast by being caught between wagon and coal pillar. |
| 24, | Martin McNauskey, ..... | Miner, ..... | 48 | M. | Central, ..... | Westmoreland, .... | Finger broken by a fall of slate. |

# THIRD BITUMINOUS DISTRICT.

(ARMSTRONG, BUTLER, CLARION, INDIANA, JEFFERSON, LAWRENCE, MERCER, WESTMORELAND AND BEAVER COUNTIES.)

---

Mercer, Pa., February 3, 1898.

Hon. James W. Latta, Secretary of Internal Affairs of Pennsylvania:

Sir: I herewith submit my annual report of the inspection of mines of the Third bituminous district for the year ending December 31, 1897, in compliance with section 11, of article X, of the bituminous mining act, approved the 15th day of May, 1893.

I regret to report an increase in the number of fatal accidents during the year just closed, as compared with the year 1896. For the year 1896, only three fatal casualties occurred, while for this year ten persons lost their lives. The increase is something extraordinary for such a district as this, but the reason may be attributed to two causes, viz., a boiler explosion, which killed three men, something which has not happened in this district before during my term of office; the other, as will be noticed in my description of the fatal accidents, by which four persons (Robertson, Nugent, Steel and Dixon) lost their lives through gross carelessness. In fact, two of the other three fatalties could have been averted by the exercise of ordinary care on the part of the two men.

No matter what safeguards prescribed by law may be thrown around the miner while he is pursuing his usual avocation, much will depend upon himself if he expects to secure the full benefits which would naturally and reasonably be expected to come from such enactments. The miner must put into use methods and means which common sense will dictate to him to employ for his own protection, together with the exercise of prudence and good judgment if he expects to escape the dreadful results which we are required to report yearly.

The number of fatal and non-fatal accidents and their causes are set forth in the following table:

| Classification of Accidents for 1897. | Fatal. | Non-fatal. | Widows. | Orphans. |
|---|---|---|---|---|
| By falls of roof, | 4 | 7 | ..... | ..... |
| By falls of coal, | 2 | 5 | ..... | ..... |
| By explosions of a boiler and of powder, | 3 | 3 | ..... | ..... |
| By mine wagons, | 1 | 6 | ..... | ..... |
| From miscellaneous causes, | ..... | 3 | ..... | ..... |
| Total, | 10 | 24 | 4 | 18 |

In the following table will be found a comparative summary of the statistics, as gathered from the official returns of the coal companies of the district to this office, for the last two years:

| | 1897. | 1896. |
|---|---|---|
| Number of mines in the district in operation, | 68 | 72 |
| Number of miners (men and boys) employed in the district, | 4,903 | 4,684 |
| Number of "day men" employed inside of the mines including the mine foremen and trapper boys, | 718 | 694 |
| Number of "day men" employed outside of mines, | 580 | 586 |
| Total number of persons employed outside and inside of the mines, | 6,201 | 5,964 |
| Number of short tons of coal produced, | 3,400,302 | 3,243,850 |
| Number of short tons of coal produced per fatal casualty, | 340,030 | 1,081,283 |
| Number of short tons of coal produced per non-fatal casualty, | 141,679 | 190,817 |
| Number of persons employed per fatal casualty, | 620 | 1,988 |
| Total number of days the mines were in operation, | 12,684 | 13,436 |
| Average number of days the mines were in operation, | 181.2 | 193.3 |
| Average number of days for mines which were in operation 100 or more days during the year, | 195.4 | 204.6 |

It will be observed from the above comparison of the number of employes and of the coal tonnage for the last two years that there is an increase in the former of 237, while in the latter the increase is 156,452 tons. Although there was a general strike, which lasted, in some instances, for three months, among the miners of the western part of the State, it seems to have had no effect in diminishing the running time at the mine nor of reducing the coal tonnage, for the coal production shows an increase. The miners of Mercer, Butler, Beaver, Lawrence, part of Westmoreland and Jefferson counties in this district all participated more or less in the strike, losing much time, yet I am of the opinion that not much more working time, if any, would have been made at the mines supposing no strike to have taken place, as I have not heard of the trade suffering for lack of coal.

The mines, with but few exceptions, are in a very satisfactory condition. A brief description of each mine is given in another part of

this report. A description of all fatal and non-fatal accidents will be found in tables Nos. 4 and 5, also the full statistical matter will appear in tables Nos. 2 and 3.

All of which is respectfully submitted.

Yours very respectfully,

THOMAS K. ADAMS,

Inspector.

## Description of Mines.

### Mines Situated Along the Allegheny Valley Railroad, in Armstrong and Clarion Counties.

There are ten mines located in this division of the district. The Monarch mine has resumed operation after having been abandoned for nearly three years. The Mahoning mine is practically not under the regulation of the mining act at present, while the Hardscrabble mine has not been in operation at all during the year. The other mines of this division of the district have been doing a reasonably good business, as no strikes among the miners along this railroad have occurred during the year.

Glen.—A new drift opening has been made here, located farther to the south of the old mine. All the miners who were working in the old mine have now been transferred to the new one. The main entry has been driven through the front hill, thus making two openings. Although the ventilating furnace had not yet been built at the date of my last visit, a portion of the workings was reasonably well ventilated, but the air current was not sufficient at the face of No. 1 butt entry. The mine was well drained. The total volume of air in circulation was about 5,400 cubic feet per minute. The mine is being worked on the single entry plan.

Riverview.—A good business is being done at this mine at present. The coal is brought from the interior workings of the mine to the check house, a distance of 4,300 feet by the tail rope system of haulage. The machinery in connection with this haulage plant is all of a substantial character. During my last examination of this mine, the ventilating fan was running at forty-three revolutions per minute and producing 28,000 cubic feet of air, but more than one-half of this quantity was lost through leakage before it reached the face of the workings; however, the mine was reasonably well ventilated. As was stated in my last year's report, a considerable portion of the workings of this mine are under water, but this will be remedied in the near future, as the company is having a water course level driven, which will be 500 feet long, in the solid rock beneath the coal seam, which will completely drain all the workings now inundated.

Catfish Run.—This mine has been running almost continuously during the year. At my last examination, I found plenty of air passing at the inlet and outlet, but it was not being properly conveyed to the face of the workings. The most of the air was being lost before it reached the face of the entries, owing to the excessive leakage taking place at the different room doors. This, however, is one of the natural results of working a mine on the single entry plan. The drainage is being accomplished, in a large measure, by hauling the water from the swamps in water cars, which can only be, at best, a makeshift. My experience has been that whereever such primitive methods are used to drain mines, the hauling roads were always in a wet and muddy condition, and Catfish Run mine is no exception to the rule.

Eagle.—The company operating this mine has had a steady and successful year's run. The coal reached by the old opening is about exhausted, but a new drift has been opened into a small property which lies about 1,000 feet farther to the south of the present, or old place. A tram-road has been built to connect the new mine with the old check house. The miners are being transferred from the old mine as fast as the development of the new one will allow. The quantity of air measured in both openings was 9,385 cubic feet per minute. The mine in which nearly all the miners were working was well ventilated. A small ventilating furnace has been built here. The drainage of the new mine was good.

Mineral Ridge.—The company's coal territory into which this mine was opened is about exhausted. The company has under consideration the putting in of a haulage plant, and should they decide to put in the machinery, they can reach large coal properties which lie beyond their present boundaries. I find that the ventilating furnace has not the power to produce sufficient air with which to ventilate the workings properly, hence, additional ventilating power will have to be provided at once if the workings are to extend any farther. The drainage was reasonably good.

Church Hill.—This mine does not give employment to many miners and it has not been running very steadily during the year. The total quantity of air in circulation in the mine was sufficient, but it was not conveyed to all of the workings as carefully as it might have been. In one of the butt entries, I had to stop some of the miners as they were working ahead of the air current. The drainage, in parts of the mine, was defective, but as a large ditch would be completed in a couple of days after my visit, this defect would be remedied forthwith.

## Mines Located on the Low Grade Division and the Sligo Branch of the Allegheny Valley Railroad.

There are ten mines along these divisions of the Allegheny Valley railway. They are all in active operation except the Acme mine, which has been idle all year. The Brier Ridge mine, which was one of the largest producers of coal in this region, was abandoned last spring; also, Star No. 5 mine was exhausted early in the year The Carrier Brothers mine is now being operated under the provisions of the mining act.

Summerville, or Carrier Bros.—This is a small operation, which gives employment to twenty-two miners. The most of the product is used for coaling the locomotives on the Low Grade division of the Allegheny Valley railway. I measured about 8,400 cubic feet of air per minute passing at the inlet and outlet of the mine, but this quantity was not carried forward to the face of the workings; however, the mine was fairly well ventilated. An air shaft, 45 feet deep and 5½ feet in diameter has been sunk, but the ventilating furnace has not yet been built. The mine is a drift opening. It is in good condition generally. The seam of coal is only two and one-half feet thick. The tipple is connected with the check house by an inclined plane 350 feet in length, on an angle of 20 degrees,

Oak Ridge.—This mine is in reasonably good condition, both in regard to ventilation and drainage. The coal is being taken from the property by three drift openings, and the ventilation is produced by two fans of the Clark type. These fans are jointly producing 32,000 cubic feet of air per minute, which is being reasonably well conducted to the face of the workings. They are working the Upper Freeport coal seam here, and its thickness averages about three feet nine inches. The double entry system in working out the coal prevails. The coal is hauled from the mine to the top of the plane by machinery—endless rope system—then it is let down the plane, which is about one mile in length, to the tipple. All the machinery in connection with this plant works admirably.

Fairmount Nos. 1 and 3.—The Upper Freeport coal seam is being worked at this mine. The workings of this place are directly over the excavations of No. 2 mine. The ventilation is produced by two Clark fans. I measured 35,280 cubic feet of air per minute, which was being fairly well distributed throughout the workings. The drainage was reasonably good for such a mine, considering the excessive quantity of water it produces, together with the very soft nature of the floor. The coal is hauled from the mine by the tail rope system of haulage, a distance of about one mile.

Fairmount No. 2.—They are working the Lower Freeport coal seam at this mine. The coal is being hauled from the interior workings

by the tail rope system of haulage for a distance of about one mile. At my last examination, I found it reasonably well ventilated. The drainage was also good. I measured about 16,400 cubic feet of air per minute in circulation in the workings, which is being produced by a six foot "Clark" fan.

Fairmount No. 4.—This is a comparatively new mine, which I found in very good condition. I measured 18,360 cubic feet of air per minute in circulation in the mine. The interior workings were well ventilated. The tail rope system of haulage has been put in operation at this place. Nearly all the coal produced here is being mined by coal cutting machinery, seven of the Harrison machines have been put in operation. These machines are driven by compressed air. The compressor, boilers and other connected machinery are all of a substantial character. This mine was idle for three months, owing to a strike among the miners about the prices to be paid per ton for machine mining. The three Fairmount mines are all worked on the double entry plan.

Cherry Run.—This mine was only in fair condition at the date of my last visit. There was a sufficient quantity of air passing into and out of the mine, but it was not properly conveyed to the face of the workings. I measured 8,870 cubic feet of air in circulation. There is no properly constructed ventilating furnace here, but a coal fire was placed at the bottom of the air shaft as a substitute for it. The traveling way was not in proper condition for the miners to travel therein, but a shaft is being sunk at the face of the workings for this purpose. The drainage was reasonably good.

Diamond.—At my last examination of this mine I found it in very good condition. I measured 10,200 cubic feet of air per minute in circulation, which was fairly well distributed to the interior workings. The drainage is now very good. This mine is worked on the single entry plan.

Keystone No. 2.—This mine is comparatively new. An electric plant has been installed during the year. The most of the coal is being mined by the use of coal cutting machinery. Two machines of the chain cutter type, or what are known as the Jeffrey machines, are now in use here. The coal seam is about three and one-half feet thick, which is overlaid with a very strong and compact shale, making the natural conditions very favorable for the use of this class of machinery. A new ventilating furnace has been built, and an air shaft sunk at this mine during the year. I measured 10,500 cubic feet of air per minute in circulation, which was being well conducted to the face of the workings. The ventilation and drainage of the mine were good. The single entry plan of working out the coal prevails here.

Avondale.—This mine is in very good condition, both in regard to ventilation and rainage. There was being distributed throughout the

workings 10,500 cubic feet of air per minute, which was a sufficient quantity for the number of persons employed.

### Mines Situated in the Reynoldsville Region, Jefferson County.

There are six mines located in the Reynoldsville region at present, but the Sherwood mine has not been operated under the regulations of the mining act during this year.

Big Soldier and Sprague.—These two mines have their workings now connected and the boundary lines, which have separated them in the past have been partially destroyed, but no inconvenience is caused thereby, as the same company operates both mines. The coal produced is brought to a common point of delivery by two separate systems of mine haulage. At the Sprague mine, the coal is hauled for a distance of a mile by the tail rope system, while for doing similar work and for about the same distance, the endless rope system is employed at the Big Soldier mine. The joint daily production for both places is about 4,300 tons. These mines have been running very steadily during the year, and all of the mining has been done by coal cutting machinery of the Harrison type. There have been erected at these mines during the year slack storage bins, elevators and revolving screens, which are all of the most efficient and modern design. This machinery is intended to prepare slack to supply the 200 bee hive coke ovens which have also been built here recently. The elevating and screening apparatus have a capacity for preparing 700 tons of slack daily. The company operating these mines has had many fine new houses of modern design and with modern conveniences built for the use of the miners, and from appearance a beautiful village will soon be established here. Two fans, one twenty-four and the other six feet in diameter, and a large sized furnace, produce the ventilation. I measured 74,500 cubic feet of air per minute, which was being conducted forward, in several separate currents, to the face of the workings. The mines were reasonably well ventilated and the drainage was excellent. The double entry plan of working is carried out here.

Hamilton.—This mine did not run very steadily during the year. At the date of my last visit, I found it in very good condition generally, and I measured 13,500 cubic feet of air per minute circulating therein. This was well conveyed to the working places of the mine. The tail rope system of haulage is being put in operation here.

Bloomington.—This is a new drift opening. I found the interior of the mine well ventilated. The drainage was good in the two butt entries where the miners were employed, but the main face entries were being driven to the "dip," and are under water. The company contemplates putting in a new slope opening to the dip of the measures in the near future. A ventilating fan has been purchased and

will be erected soon. The ventilation is now produced by a small furnace, and I measured 9,000 cubic feet of air per minute near the face of the entries in the mine.

Henry Bros.—The narrow work of this mine has all been driven to the boundary lines of the company's coal property. There may be sufficient coal in the pillars of the mine to keep it in operation for a year or two at least. With the exception of one point in the interior workings of the mine, I found it well ventilated. The drainage was also good. I measured 9,000 cubic feet of air per minute being distributed to the face of the works here.

## Mines Situated in Beaver and Lawrence Counties.

There are twelve mines located in these two counties. At the Darlington mine, the number of persons employed has been reduced to less than ten, hence, it is not now under the provisions of the mining act. The other mines, when not on strike, were doing a fair business during the year.

Beaver.—This mine is running steadily at present and producing a large tonnage daily. The coal is being mined by coal cutting machinery of the Ingersoll type—punchers—which are driven by compressed air. While the coal seam does not average three feet in thickness, the machines are apparently being operated economically and successfully. The weight of these machines is greatly to their advantage in contributing to their successful operation, especially where the coal seam is as thin as it is in this mine. I found the mine in very good condition, both in regard to ventilation and drainage. The ventilation was produced by a double fan, six feet in diameter. I measured 21,000 cubic feet of air per minute in circulation, which was well distributed to the face of the workings. The single entry plan of working out the coal prevails here. The coal is hauled for nearly one mile from the workings to the tipple by the tail rope system.

A new drift opening has been made in connection with these works into an upper seam (Lower Freeport). The coal from this new opening is brought down to the tipple of the lower mine from a station inside the new drift, by a branch of the tail rope system in use at the lower mine. The distance from the mouth of this drift to the tipple is about 2,300 feet and the plane on which the mine wagons are lowered thereto is on an angle of about five or six degrees. A fan, eight feet in diameter, is the power used to product the ventilation, and I measured 9,600 cubic feet of air per minute produced by it. This place is not yet subject to the regulations of the law from the fact that there are not a sufficient number of persons employed.

Rock Point.—I measured 10,000 cubic feet of air per minute at the

ventilating furnace, but this power is capable of putting in circulation a much greater quantity of air when it is properly attended to. At the date of my last examination I found the mine, as a whole, in very good condition. The quantity of air measured was reasonably well conveyed to the working places of the mine. The drainage was also good. The coal is being mined on the single entry plan. This mine usually runs very steadily, the most of its product being used for coaling locomotives on the Pittsburgh and Western Railroad.

Thompson Run.—This mine has not been in operation very steadily during the year, and at the date of my last visit it was idle owing to a strike existing among the miners. Since that date, the company has gone into the hands of a receiver. At a prior visit, however, I found the mine in reasonably good condition generally.

Connessing.—This small operation has had a very steady run during the year. Nearly all the product of this mine is used in coaling locomotives on the Pittsburgh and Western railroad. The coal seam here averages only about thirty inches in height. I found the mine in very good condition generally. There was an ample volume of air circulating throughout the workings. The drainage was also excellent. The quantity of air in circulation was 11,700 cubic feet per minute.

Penn.—This mine has not been running very steadily during the year and at the date of my last visit it was again idle. At the last examination, when the mine was running, I did not find it in a very satisfactory condition, owing to the volume of air being insufficient at the face of the workings. I measured 5,400 cubic feet of air per minute at the furnace, but the fire in it was very low, which was one of the principal reasons for the insufficiency of ventilation.

Mehard.—This mine is being worked on the single entry plan, and as usual when the butt entries are driven up a distance of about 900 feet, the air current becomes weak, owing to the excessive leakage which takes place at the room doors along the entries. I found this to be the condition of things at this mine, although I measured 10,250 cubic feet of air per minute at the inlet and outlet. All other conditions were very favorable, except that the "second" opening was not in good condition for travel. However, another traveling way has been completed since my visit.

Excelsior Nos. 1 and 2.—The No. 1 mine will soon be exhausted, as there are only pillars to be drawn now, and they were pretty well taken out. The working places here were very well ventilated. No. 2 mine is yet a small operation. I found it in fairly good condition, both in regard to ventilation and drainage. A second opening has been provided and an air shaft six feet by five feet and eighty feet deep has been sunk. The ventilating furnace has not yet been built.

Cannelton.—This mine is a small operation, but, owing to the fact

that all the coal to be taken out of the property is the pillars, it will soon be exhausted. No regular system of working out the coal in the solid had been followed, hence, the mine was not in very good condition when last examined.

Butts Cannel.—This is the only mine from which cannel coal is taken in my district that is being operated under the provisions of the law. This is a shaft opening and the entries are being driven in an east and west direction from the bottom of it. The cannel seam, in the swamps, attains a thickness of about nine feet, but the basin is very narrow, in fact the coal basin does not exceed in width in some parts of the mine, fifty to sixty yards. The mine is ventilated by a fan, and the air produced is conducted to the face of the workings in two separate currents. The mine is in excellent condition, both as to its ventilation and drainage. I measured a total volume of air in circulation of 18,000 cubic feet per minute.

Sterling.—I found this mine in fairly good condition on my last visit. There has been considerable idleness at this place during the year owing to the miners striking so frequently. All the miners then employed were working in one entry. The ventilation was sufficient for the number of persons employed. The drainage was also very good.

State Line.—I measured 40,220 cubic feet of air per minute at the inlet to this mine, but not one-half of this quantity reached the workings in the interior but the mine is fairly well ventilated. The drainage is now good, except in one of the butt entries. The coal is brought from this mine to the tipple, a distance of 6,750 feet, by the tail rope system of haulage. The plan of working out the coal is that of single entry.

## Mines Situated Along the West Pennsylvania Railroad in Westmoreland and Armstrong Counties.

There are twelve mines in active operation along this railroad at present, all working in the Upper Freeport coal seam, with the exceptions of the Avonmore mine, which is opened on the Pittsburgh bed. The Avonmore mine is operated on the double entry system, while all the others in this region are being worked on the single entry plan. The height of the Upper Freeport coal seam here will average about three and one-half feet, which is overlaid with an excellent shale roof and the mines being reasonably dry, little expense for "dead work" and in keeping them in a good condition is required, and, as a rule, the miners in this region have very comfortable and healthful places in which to labor.

Avonmore.—This mine is in two divisions and the ventilation is produced by two furnaces. The total quantity of air circulating in

the mine was 33,400 cubic feet per minute, but not all of this volume was at the face of the workings. The mine, as a whole, was reasonably well ventilated. The drainage was also good.

Pine Run.—Both in regard to ventilation and drainage this mine was in very fair condition. I measured 13,500 cubic feet of air per minute, but the volume was reduced very much before it reached the face of the butt entries. Of course, this is one of the natural results of the single entry system.

Leechburg No. 4.—At the date of my last visit the usual number of persons was not yet employed, as it had only been started up after the strike. I measured 20,000 cubic feet of air in circulation, which was well conveyed to the face of the working places. The mine, as a whole, was in splendid condition.

Riverview.—This is a comparatively new mine and I found it in splendid condition. Plenty of air was in circulation in all parts of the mine and the drainage was also good. An air shaft sixty-two feet in depth and six feet eight inches in diameter has been sunk and a ventilating furnace eight feet wide by five and one-half feet high above the grate bars, with an arch twenty-one feet long, has been built during the year. A second opening has also been provided. I measured 10,000 cubic feet of air per minute passing through the mine.

Haddon.—The ventilation in this mine was reasonably good and the drainage also was splendid. An average volume of air was passing of about 9,300 cubic feet per minute. There are two separate splits of air in this mine, whereas if there was only one current the ventilation would have been more efficient. Some improvements have been made in connection with the inclined plane here. The friction drum at the check house has been put under the track and "barneys" have been attached to the plane ropes and four cars are now run down the plane at each trip instead of one.

Gilpin.—I measured 20,000 cubic feet of air per minute flowing into and out of this mine. The general condition of the mine was very good. The air currents were fairly well distributed.

Bagdad No. 2.—This mine was not in very good condition at my last examination as far as the quantity of air in the workings was concerned. At the face of the entries the volume of air was not sufficient, but preparations were then being made to build a larger ventilating furnace, which has since been built, and the superintendent has sent me the following data relative thereto: Size of furnace, seven feet wide by five and one-half feet high above the grate bars, the arch is sixteen feet long, with an air chamber on each side. The quantity of air being produced by this furnace is 28,320 cubic feet per minute. With such a volume in circulation, the mine must now

be in splendid condition in this respect. The drainage in the working parts when last examined was good.

West Penn.—At the time I last examined this mine there were not many miners employed, and I found the volume of air circulating to be ample for the requirements. I measured 6,600 cubic feet of air per minute being distributed in the workings. The drainage was good.

Blackston.—I measured 18,720 cubic feet of air at the mine furnace, and about one-half of this quantity was being conducted to the working places. The drainage was very good. The workings, especially the entries, will soon be up to the boundary lines, but the company is opening a new drift in a hill opposite to the present opening which will take its place as it becomes exhausted.

Beale.—Near the face of the main entry an air shaft has been provided and a furnace built in order to provide more ventilation. The mine was in fair condition, both in regard to the ventilation and drainage. I measured 7,100 cubic feet of air per minute on the return near the face of the works. The mine is practically dry, thus insuring good drainage. The miners found steady employment at this place during the year.

Kirkpatrick.—There was no broken time at this mine during the year. I measured, at the outlet, 14,700 cubic feet of air per minute, which was very well taken care of until it reached the inner workings. The mine, as a whole, was in very good condition.

Kerr.—This is a new drift opening which has come under the provisions of the mining law during the year. This mine supplies coal for the distilleries at Freeport and for the people living in that town and neighborhood. The mine was only in fair condition.

## Mines Situated Along the Bessemer, Pittsburgh and Lake Erie Railroad and in Other Parts of Butler and Mercer Counties.

There are still twenty-one mines in those two counties in active operation, and, although Gomersal, Ormsby slope, Keister and Jewell No. 1 have been abandoned, four other mines have been brought under the law during the year.

Hallville.—I measured 10,690 cubic feet of air per minute at the outlet of the mine, but not much of this reached the face of the workings. The mine was not in very good condition as to ventilation, as the air courses were not kept as clean as they should have been, and the doors on entrances of rooms had also been neglected. These details, always necessary to be attended to to insure sufficient ventilation, had been neglected, owing to the fact, no doubt, of the mine having been operated so unsteadily for more than a year.

Claytonia.—This is a small operation which gives employment to

only about twenty miners. The drainage in Nos. 1 and 2 butt entries was somewhat defective, but a water course was being driven to remedy this defect. There was a volume of only about 3,400 cubic feet of air per minute in circulation, which was not sufficient for distribution in the workings to insure sufficient ventilation. An air shaft has been sunk and preparations are being made to build a furnace so that the law in regard to ventilation can be complied with.

Stage.—This mine was not shipping coal at my last visit, and the only work being done was driving entries. The mine was in splendid condition, however. A ventilating furnace has been built and an air shaft sunk, thus furnishing the means for producing a large volume of air. I measured, near the furnace with scarcely any fire in it, 11,800 cubic feet of air per minute.

Jewell No. 2.—This is a new drift opening and there are about thirty persons employed. A shallow air shaft has been sunk, and preparations are in progress for building a ventilating furnace. A second opening has also been completed to this mine. I measured 4,800 cubic feet of air at the outlet. An electric plant has been installed here, and they are now operating two chain coal cutting machines of the Jeffrey type. These coal cutters weight about 2,700 pounds each, and their weight may prove a serious disadvantage to economical and successful operation, especially where such a low seam of coal exists as there is in this mine; however, experience will prove this matter.

Standard.—This mine has been running very steadily during the year. While making my last examination, I measured, at the inlet and outlet, about 13,000 cubic feet of air per minute, but, owing to the cut-throughs between the double entries being almost closed with dirt, it was impossible for much of a current to get to the working places. Water was over the bed of the hauling roads in some part, but, no doubt, this was owing to some of the pumps being stopped because of the mine being partially idle on the date of my last visit. The mine was not in as good a condition as it should have been. They are working by what they call the double gob entry system, but this is merely two rooms being driven parallel, which are intended to serve the purpose of double entries, but it has been my experience that the results looked for are never realized.

Royle.—I found this mine in very good condition, and, although there were only 4,000 cubic feet of air in circulation, but it was conducted to the face of the workings where only thirty miners were employed. The workings were in a very healthful condition, and as the mine was well drained, the miners had a very comfortable place in which to work.

Lake Erie.—I measured 9,600 cubic feet of air, which was being distributed throughout the workings of the mine, and this was a

sufficient quantity for the number of persons employed. The mine was in fairly good condition otherwise.

Mizner.—The quantity of air in circulation was conveyed to the face of the workings in two separate currents. The volume of air in the mine, which was well distributed to the miners places, was 17,100 cubic feet per minute, which was amply sufficient for all requirements. The mine was also well drained.

Enterprise.—This is a small operation and was giving employment to only about twenty persons at my last visit. The mine was in very fair condition, both in regard to ventilation and drainage.

Keystone Nos. 1 and 2.—The No. 1 mine was not in operation at my last visit, but No. 2 was. No. 2 was in very fair condition. I measured, at the inlet and outlet, of the mine, 9,180 cubic feet of air per minute, which was being very well taken care of until it reached the inner workings. The drainage was also good. The second opening was not yet completed, but they were working at it.

Black Diamond Nos. 1 and 2.—I measured 13,600 cubic feet of air in circulation, which was being carried forward very well into the face of the workings of No. 1 mine. The drainage was also reasonably good. In No. 2 mine, I measured 10,780 cubic feet of air in circulation, and the general condition was very good. The single entry plan of working out the coal prevails at both places. Owing to the strikes which took place among the miners at these two places, there has been much broken time.

Chestnut Ridge No. 2.—At the date of my last examination I found that the ventilation was not strong enough in portions of the workings, especially those adjacent to the workings of the old Chestnut Ridge mine. The new mine workings are connected with the old ones and as many of the miners were working in the rooms of the old place the ventilation had not yet been properly conducted to them. The other parts of the mine were in fairly good condition.

Pardoe.—This mine was not in a very satisfactory condition. The ventilation was not sufficient at the face of some of the workings. They were busy driving solid air courses at the face of a portion of the works, so as to connect the different butt entries, which will, in a measure, remedy the defects in ventilation. It is almost impossible to establish good drainage here owing to the peculiar position in which the seam of coal is found. Several pumps are at work inside of the mine, but they fail to keep it free from stagnant water.

Witch Hazel.—This mine has been brought under the regulations of the mining act during the year. The shaft was sunk to the block coal, but the coal territory is very limited in extent. At my last visit, I found more than twenty persons employed, and I ordered that no more than the lawful number of persons be employed until the second opening had been sunk and fitted with stairs to serve the pur-

pose of a traveling way. This second opening has been provided since my visit. The volume of air in circulation was not quite sufficient as the exhaust steam from the pumps was the only ventilating power they had, but when the workings progress farther into the coal property, such means will be inadequate for putting into motion a sufficient quantity of air for a mine of this size.

Carver.—The quantity of air in circulation was being conducted to the working faces of the mine in three separate currents. I measured 16,600 cubic feet per minute at the outlet of the mine, which was being well distributed throughout the workings. While the ventilation was reasonably good, the drainage was somewhat defective at two points in two of the butt entries. This is a very wet mine and some portions of the roof is very soft, requiring the entries in those parts to be driven very narrow, and as the floor is composed of a very soft fire clay, proper drainage is hard to maintain.

Stoneboro Nos. 2 and 3.—At my second last visit to No. 2 mine I found the inner workings poorly ventilated. These workings had reached a point at which the ventilating power was entirely inadequate to produce a sufficient quantity of air, hence, I ordered an air shaft to be sunk close to the working faces. At my last inspection I found that my directions had been complied with. A shaft sixty-one feet deep and six feet square had been sunk. Consequently, I found the ventilation much improved. I measured 12,500 cubic feet of air in circulation in the different parts of the mine. The drainage was fairly good. No. 3 mine has been idle most of the time during the year. At the time of my last visit, the company was putting in the tail rope system of haulage, by which the coal from the inner workings of No. 2 mine could be hauled out at this opening. The workings of these two places are now connected, and it will be a much shorter way to haul the No. 2 mine coal out of the No. 3 opening hereafter.

Hill.—The tail rope system of haulage has been introduced at this place recently. The coal will be hauled by this method for a distance of 2,500 feet. This company has made the same mistake as many others do, in not having the hauling machinery of sufficient power to do the required work; however, I am informed that a larger pair of engines will be substituted for the ones now in use. I measured 8,900 cubic feet of air per minute in circulation in the mine, which was being produced by a small furnace. The company has bought a ten-foot fan, which will be erected soon, which will be capable of producing more air than the present furnace. The mine was very well ventilated and drained.

TABLE No. 1.—Showing Location, etc., of Collieries in the Third Bituminous District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Acme, | Acme Mining Company, | Clarion, | J. W. Hill, | East Brady. |
| Avonmore, | Avonmore Coal Company, | Armstrong, | L. W. Hicks, | Leechburg. |
| Avondale, | Avondale Mining and Manufacturing Co., | Clarion, | James Mitchell, | Lawsonham. |
| Bloomington, | Rembrandt Peale, | Jefferson, | Alexander Dunsmore, | Glen Richey. |
| Butts, | Butts Cannel Coal Company, | Beaver, | George Gould, | East Palestine, Ohio. |
| Blackstone, | Lewis Coal Company, | Westmoreland, | N. S. Hicks, | Leechburg. |
| Bagdad No. 2, | Bagdad Coal and Coke Company, | Westmoreland, | N. S. Hicks, | Leechburg. |
| Big Soldier Run, | Jefferson & Clearfield Coal & Iron Co., | Jefferson, | John H. Bell, | Reynoldsville. |
| Black Diamond No. 1, | Filer, Sutliff & Co., | Mercer, | Frank Filer, | Mercer. |
| Black Diamond No. 2, | Filer, Sutliff & Co., | Mercer, | Frank Filer, | Mercer. |
| Beale, | J. G. Beale & Co., | Armstrong, | George Knepshield, | Leechburg. |
| Beaver, | Beaver Coal and Coke Company, | Lawrence, | H. K. Hartsuff, | Wampum. |
| Claytonia, | Claytonia Coal Company, Limited, | Butler, | Samuel Kinsey, | Pump. |
| Chestnut Ridge, | Filer, Westerman & Co., | Mercer, | Enoch L. Filer, Jr., | Grove City. |
| Catfish Run, | Catfish Run Coal Company, | Clarion, | Charles J. Tighe, | Catfish. |
| Cherry Run, | Cherry Run Coal Company, | Clarion, | E. N. Miller, | Huey. |
| Carver, | Carver Coal Company, | Mercer, | Frank Filer, | Mercer. |
| Connessing, | Connessing Coal Company, | Beaver, | J. Wylie, | Frisco. |
| Cannelton, | Morgan Coal Company, | Beaver, | H. V. Sanor, | Cannelton. |
| Church Hill, | Church Hill Coal Company, | Clarion, | C. W. Horner, | Dutch Hill. |
| Diamond, | Diamond Coal Company, | Clarion, | W. S. Mitchell, | East Brady. |
| Darlington, | Darlington Coal and Clay Works Company, | Beaver, | Charles Jenkins, | Darlington. |
| Enterprise, | Peter D. Sherwin, | Butler, | Peter D. Sherwin, | Karns City. |
| Excelsior, | Wampum Run Coal Company, | Lawrence, | Matthew Gunton, | Wampum. |
| Eagle, | Eagle Coal and Mining Company, | Clarion, | Joseph Lehner, | Red Bank Furnace. |
| Fairmount Nos. 1 & 3, | Fairmount Coal and Iron Company, | Clarion, | S. Taylor Sheaffer, | New Bethlehem. |
| Fairmount No. 2, | Fairmount Coal and Iron Company, | Clarion, | S. Taylor Sheaffer, | New Bethlehem. |
| Fairmount No. 4, | Fairmount Coal and Iron Company, | Clarion, | S. Taylor Sheaffer, | New Bethlehem. |
| Gilpin, | Gilpin Coal Company, | Armstrong, | L. W. Hicks, | Leechburg. |
| Glen, | J. R. Smith, | Armstrong, | J. M. Foltz, | Manorville. |
| Hallville, | Grove Coal Company, | Mercer, | D. D. Morris, | Grove City. |
| Haddon, | Haddon Coal Company, | Armstrong, | N. S. Hicks, | Leechburg. |
| Hardscrabble, | Brady's Bend Mining Company, Limited, | Clarion, | C. F. Hartwell, | Oil City. |
| Hill, | Hill Coal Company, Limited, | Mercer, | William Jenkins, | Jackson Center. |
| Henry Bros., | Henry Brothers, | Jefferson, | L. L. Henry, | Rathmel. |
| Hamilton, | Jefferson and Clearfield Coal and Iron Co., | Jefferson, | John H. Bell, | Reynoldsville. |
| Jewell, | C. A. Jewell, | Butler, | T. J. Simpson, | Fleeger. |
| Keystone No. 1, | Turner Coal, Coke and Mining Company, | Butler, | John L. Turner, | Ferris. |
| Keystone No. 2, | Turner Coal, Coke and Mining Company, | Butler, | John L. Turner, | Ferris. |
| Keystone, | Keystone Coal and Mining Company, | Clarion, | John Henry, | East Brady. |
| Kerr, | Kerr Coal Company, | Armstrong, | G. B. Findley, | Freeport. |
| Kirkpatrick, | Kirkpatrick & Co., Limited, | Armstrong, | S. T. Shoff, | Leechburg. |
| Leechburg, | Leechburg Coal and Coke Company, | Westmoreland, | N. S. Hicks, | Leechburg. |
| Lake Erie, | Lake Erie Coal Company, | Butler, | George Findley, | Hilliards. |
| Mizner, | F. A. Mizner, | Butler, | George Findley, | Hilliards. |
| Mehard, | Mehard Coal Company, | Lawrence, | Robert H. Mehard, | Wampum. |

| | | | | |
|---|---|---|---|---|
| Monarch, | C. P. McCafferty, | Clarion, | C. P. McCafferty, | East Brady. |
| Mineral Ridge, | T. J. Skidmore & Co., | Clarion, | C. W. H. Eicke, | West Monterey. |
| Oak Ridge, | Oak Ridge Coal and Mining Co., | Armstrong, | Henry Williams, | Oak Ridge Station. |
| Pine Run, | Pine Run Coal Company, | Westmoreland, | L. W. Hicks, | Leechburg. |
| Pine Creek, | Pine Creek Coal Company, | Armstrong, | John L. Murray, | Mosgrove. |
| Penn, | Penn Coal Company, | Lawrence, | Edwin N. Ohl, | New Castle. |
| Pardoe, | Filer Brothers, | Mercer, | Enock L. Filer, Jr., | Grove City. |
| Riverview, | Riverview Coal and Mining Company, | Armstrong, | James S. Moore, | 602 Mooney & Brisban building, Buffalo, N. Y. |
| Riverview, | Leechburg Coal and Coke Company, | Westmoreland, | N. S. Hicks, | Leechburg. |
| Rock Point, | Rock Point Coal Company, | Lawrence, | William Brown, | Wampum. |
| Royle, | Royle Coal Company, | Butler, | R. E. Royle, | Hilliards. |
| Summerville, | Carrier Brothers, | Jefferson, | W. H. Carrier, | Summerville. |
| Stage, | George G. Stage, | Butler, | George G. Stage, | Greenville. |
| Spears, | J. J. Spears, | Mercer, | James H. Spears, | Grove City. |
| Sprague, | Jefferson and Clearfield Coal and Iron Co., | Jefferson, | John H. Bell, | Reynoldsville. |
| Stoneboro No. 2, | Mercer Coal and Iron Co., | Mercer, | B. F. Esgar, | Stoneboro. |
| Stoneboro No. 3, | Mercer Coal and Iron Co., | Mercer, | B. F. Esgar, | Stoneboro. |
| Sterling, | Sterling Coal Company, | Beaver, | George Gould, | East Palestine, Ohio. |
| State Line, | State Line Coal Company, | Beaver, | Hugh Laughlin, | East Palestine, Ohio. |
| Standard, | Peter D. Sherwin, | Butler, | Peter D. Sherwin, | Sherwin. |
| Thompson Run, | Thompson Run Coal Company, | Beaver, | Wm. Douthett, | New Castle. |
| West Penn, | West Penn Mining Company, | Westmoreland, | L. W. Hicks, | Leechburg. |
| Witch Hazel, | Witch Hazel Coal Company, | Mercer, | David Jacobs, | Wheeler. |

TABLE No. 2.—Gives the total number of tons of coal mined and tons of coke produced in each Colliery, number of days worked, number of employes, number of persons killed and injured, nu mber of kegs of powder used, etc., in the Third Bituminous District, for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avonmore, | Armstrong, | 84,183 | ..... | ..... | ..... | 84,183 | 215 | 120 | ..... | 2 | 200 | ..... | ..... | 10 | ..... | ..... |
| Avondale, | Clarion, | 25,039 | ..... | 23 | 17 | 24,999 | 206 | 48 | ..... | ..... | ..... | ..... | ..... | 4 | ..... | ..... |
| Bloomington, | Jefferson, | 76,341 | ..... | ..... | 25 | 76,316 | 216 | 78 | ..... | ..... | 790 | ..... | ..... | 6 | ..... | ..... |
| Butts, | Beaver, | 26,045 | ..... | 500 | ..... | 25,545 | 182 | 63 | ..... | ..... | 114 | ..... | ..... | 3 | ..... | ..... |
| Blackstone, | Westmoreland, | 45,251 | ..... | ..... | ..... | 45,251 | 184 | 79 | ..... | ..... | 650 | ..... | ..... | 5 | ..... | ..... |
| Briar Ridge, | Clarion, | 15,000 | ..... | ..... | ..... | 15,000 | 60 | 127 | ..... | 1 | 50 | 25 | 1 | 10 | ..... | ..... |
| Bagdad No. 2, | Westmoreland, | 24,840 | ..... | 150 | ..... | 24,690 | 207 | 44 | ..... | 1 | 550 | ..... | ..... | 2 | ..... | ..... |
| Big Soldier Run and Sprague, | Jefferson, | 962,976 | 39,020 | 12,320 | ..... | 881,762 | 245 | 846 | 2 | 4 | 7,220 | 3,100 | 9 | 134 | ..... | 200 |
| Black Diamond No. 1, | Mercer, | 55,663 | ..... | 3,500 | ..... | 52,163 | 140 | 148 | ..... | ..... | 390 | ..... | 6 | 12 | ..... | ..... |
| Black Diamond No. 2, | Mercer, | 40,418 | ..... | 1,100 | ..... | 39,318 | 128 | 114 | ..... | ..... | 300 | ..... | 4 | 8 | ..... | ..... |
| Beale, | Armstrong, | 40,525 | ..... | ..... | 700 | 39,825 | 204 | 54 | ..... | 1 | 1,080 | 2 | ..... | 5 | ..... | ..... |
| Beaver, | Lawrence, | 51,073 | ..... | 249 | 321 | 50,503 | 197 | 166 | ..... | 1 | 326 | ..... | 3 | 14 | ..... | ..... |
| Claytonia, | Butler, | 4,500 | ..... | ..... | ..... | 4,500 | 103 | 29 | ..... | ..... | ..... | 200 | ..... | 2 | ..... | ..... |
| Chestnut Ridge, | Mercer, | 37,764 | ..... | 5,600 | ..... | 32,164 | 171 | 98 | ..... | ..... | 126 | ..... | 5 | 6 | ..... | ..... |
| Catfish Run, | Clarion, | 26,689 | ..... | ..... | 50 | 26,639 | 220 | 60 | ..... | 3 | 120 | 25 | ..... | 7 | ..... | ..... |
| Cherry Run, | Clarion, | 17,616 | ..... | 25 | 50 | 17,541 | 157 | 47 | 1 | ..... | 50 | 20 | 1 | 2 | ..... | ..... |
| Carver, | Mercer, | 66,767 | ..... | 4,400 | 1,000 | 61,367 | 198 | 132 | ..... | ..... | 410 | ..... | 5 | 6 | ..... | ..... |
| Connessing, | Beaver, | 22,627 | ..... | 146 | 12 | 22,469 | 275 | 53 | ..... | ..... | 72 | 125 | ..... | 5 | ..... | ..... |
| Cannelton, | Beaver, | 14,400 | ..... | ..... | ..... | 14,400 | 225 | 36 | ..... | ..... | 94 | ..... | ..... | 2 | ..... | ..... |
| Church Hill, | Clarion, | 4,500 | ..... | ..... | ..... | 4,500 | 100 | 29 | ..... | ..... | 1 | ..... | ..... | 3 | ..... | ..... |
| Diamond,* | Clarion, | 20,000 | ..... | ..... | 150 | 19,850 | 150 | 50 | ..... | ..... | ..... | ..... | ..... | 5 | ..... | ..... |
| Darlington or Iron Mountain, | Beaver, | 3,200 | ..... | 200 | ..... | 3,000 | 200 | 10 | ..... | ..... | 35 | ..... | ..... | 3 | ..... | ..... |
| Enterprise, | Butler, | 16,873 | ..... | ..... | ..... | 16,873 | 203 | 31 | ..... | ..... | 200 | 50 | ..... | 3 | ..... | ..... |
| Excelsior, | Lawrence, | 21,822 | ..... | 125 | 200 | 21,497 | 142 | 105 | ..... | ..... | 100 | 100 | ..... | 7 | ..... | ..... |
| Eagle, | Clarion, | 42,744 | ..... | ..... | ..... | 42,744 | 240 | 72 | ..... | ..... | ..... | ..... | ..... | 4 | ..... | ..... |
| Fairmount Nos. 1 and 3, | Clarion, | 203,746 | ..... | 456 | 438 | 202,858 | 295 | 320 | 1 | ..... | 2,600 | ..... | 1 | 21 | ..... | ..... |
| Fairmount No. 2, | Clarion, | 105,831 | ..... | 1,440 | ..... | 104,387 | 295 | 140 | 1 | ..... | 1,600 | ..... | 2 | 9 | ..... | ..... |
| Fairmount No. 4, | Clarion, | 45,795 | ..... | 492 | ..... | 45,303 | 212 | 140 | ..... | ..... | 1,300 | ..... | 3 | 9 | ..... | ..... |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gilpin, | Armstrong, | 31,291 | | | | 31,291 | 141 | 54 | | | 150 | | | 3 | | |
| Glen, | Armstrong, | 27,822 | | | | 27,822 | 305 | 64 | | | 225 | | | 5 | | |
| Gomersal, | Butler, | 21,769 | | | 89 | 21,680 | 140 | 39 | | | 10 | | | 2 | | |
| Hallville, | Mercer, | 25,790 | | 730 | 30 | 25,030 | 110 | 54 | | | 126 | | 3 | 4 | | |
| Haddon, | Armstrong, | 24,771 | | | | 24,771 | 152 | 55 | | | 250 | | | 3 | | |
| Hill, | Mercer, | 41,500 | | | 1,200 | 40,300 | 225 | 69 | | | | | 1 | 5 | | |
| Henry Brothers, | Jefferson, | 29,832 | | | 43 | 29,789 | 210 | 23 | | | 172 | | | 4 | | |
| Hamilton, | Jefferson, | 45,572 | | | | 45,572 | 64 | 197 | | 1 | 380 | | | 17 | | |
| Jewell No. 2, | Butler, | 14,562 | | 120 | 242 | 14,200 | 135 | 50 | | | 68 | 50 | 1 | 2 | | |
| Keystone No. 1, | Butler, | 18,015 | | 185 | 200 | 17,630 | 99 | 46 | | | 150 | | | 4 | | |
| Keystone No. 2, | Butler, | 17,982 | | | 125 | 17,857 | 92 | 58 | | | 150 | | | 4 | | |
| Keystone, | Clarion, | 46,650 | | 100 | 100 | 46,450 | 261 | 70 | | | 225 | 50 | 2 | 5 | | |
| Kerr, | Armstrong, | 3,190 | | | 3,040 | 150 | 300 | 12 | | | | | | 2 | | |
| Kirkpatrick, | Armstrong, | 25,000 | | 25,000 | | | 307 | 23 | | | 225 | | | 3 | | |
| Leechburg No. 4, | Armstrong, | 22,358 | | | | 22,358 | 240 | 39 | | | 152 | | | 2 | | |
| Lake Erie, | Butler, | 27,069 | | 70 | 81 | 26,918 | 209 | 59 | | 2 | 275 | | | 4 | | |
| Mizner, | Butler, | 41,825 | | 75 | 76 | 41,674 | 201 | 107 | | 1 | 305 | | | 5 | | |
| Mehard, | Lawrence, | 53,977 | | | | 53,977 | 184 | 122 | | | 400 | 50 | 1 | 8 | | |
| Mineral Ridge, | Clarion, | 23,870 | | | | 23,870 | 270 | 53 | | | | | | 7 | | |
| Mahoning, | Armstrong, | 4,391 | | | | 4,391 | 100 | 20 | | | | | | 3 | | |
| Monarch, | Clarion, | 4,256 | | | | 4,256 | 50 | 29 | | | | | | 2 | | |
| Oak Ridge, | Armstrong, | 150,111 | | 640 | 228 | 149,243 | 209 | 274 | | 2 | 619 | | 3 | 12 | | |
| Ormsby Slope, | Mercer, | 15,000 | | 800 | 100 | 14,100 | 125 | 85 | | | 200 | | 3 | 8 | | |
| Pine Run, | Westmoreland, | 24,935 | | 150 | | 24,785 | 180 | 49 | | | 500 | | | 2 | | |
| Pine Creek, | Armstrong, | 30,383 | | | | 30,383 | 191 | 63 | | | 208 | 6 | | 4 | | |
| Penn, | Lawrence, | 20,016 | | | | 20,016 | 156 | 69 | | | 150 | | | 6 | | |
| Pardoe, | Mercer, | 59,832 | | 2,000 | 1,000 | 56,832 | 185 | 104 | | | 400 | | 2 | 13 | 1 | |
| Riverview, | Armstrong, | 94,354 | | 350 | | 94,004 | 238 | 125 | | | | 3 | | 10 | | |
| Riverview, | Armstrong, | 17,714 | | | | 17,714 | 175 | 37 | | | 175 | | | 2 | | |
| Rock Point, | Lawrence, | 49,618 | | | | 49,618 | 298 | 96 | | | | | | 10 | | |
| Royle, | Butler, | 15,589 | | | 189 | 15,400 | 132 | 45 | 1 | 1 | 98 | 5 | | 4 | | |
| Summerville or Carrier Bros., | Jefferson, | 5,080 | | | 80 | 5,000 | 150 | 26 | | 1 | 12 | | | 1 | | |
| Sprague, | Jefferson, | | | | | | | | 1 | 1 | | | | | | |
| Stage & Keister, | Butler, | 3,692 | | | 20 | 3,672 | 47 | 27 | | | | | | 3 | | |
| Stoneboro No. 2, | Mercer, | 55,734 | | 572 | 1,999 | 53,163 | 227 | 120 | 3 | 2 | 272 | 54 | 1 | 20 | | |
| Stoneboro No. 3, | Mercer, | 14,582 | | 2,294 | | 12,288 | 77 | 79 | | | 64 | 11 | 3 | 6 | | |
| Sterling, | Beaver, | 27,246 | | | | 27,246 | 164 | 70 | | | 186 | 40 | | 5 | | |
| Spears, | Mercer, | 5,752 | | 50 | 100 | 5,602 | 76 | 18 | | | 50 | 1 | 1 | | | |
| State Line, | Beaver, | 49,031 | | 1,000 | | 48,031 | 200 | 109 | | | 500 | | 3 | 9 | | |
| Standard, | Butler, | 45,563 | | 1,200 | 650 | 43,713 | 208 | 99 | | | 10 | 5,000 | 2 | 4 | | |
| Thompson Run, | Beaver, | 40,600 | | | 100 | 40,500 | 180 | 76 | | | 250 | | | 6 | | |
| West Penn, | Armstrong, | 14,250 | | | | 14,250 | 161 | 31 | | | 100 | | | 3 | | |
| Witch Hazel, | Mercer, | 7,500 | | 525 | 75 | 6,900 | 140 | 37 | | | 35 | 250 | 2 | 3 | | |
| Total, | | 3,400,302 | 39,020 | 66,581 | 12,730 | 3,252,093 | 12,684 | 6,131 | 10 | 24 | 25,470 | 9,167 | 68 | 532 | 1 | 200 |

* The statistics of this mine is approximated by the Inspector.
§ Sprague report is included with that of Big Soldier Run.
Note.—The total number of employes given in this table is 70 less than appears in table No. 3, owing to the fact that the 70 mine foremen are not included in this table while they are included in table 3.

TABLE No. 3—Showing the number of each class of Employes at each Colliery in the Third Bituminous District, during the year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total inside. | |
| Avonmore, | 1 | ..... | 101 | ..... | 6 | 2 | 2 | 112 | ..... | 1 | ..... | 1 | 6 | 1 | 9 | 121 |
| Avondale, | 1 | ..... | 38 | ..... | 4 | ..... | 1 | 44 | ..... | 1 | ..... | 2 | 2 | ..... | 5 | 49 |
| Bloomington No. 9, | 1 | ..... | 66 | ..... | 3 | 1 | 2 | 73 | ..... | 1 | ..... | ..... | 3 | 2 | 6 | 79 |
| Butts, | 1 | ..... | 52 | ..... | 3 | ..... | ..... | 56 | ..... | 1 | 1 | ..... | 6 | ..... | 8 | 64 |
| Blackstone, | 1 | ..... | 68 | ..... | 4 | 2 | ..... | 75 | ..... | 1 | ..... | 1 | 1 | 2 | 5 | 80 |
| Briar Ridge, | 1 | ..... | 108 | ..... | 7 | 1 | 2 | 119 | ..... | 1 | 2 | 2 | 3 | 1 | 9 | 128 |
| Bagdad No. 2, | 1 | ..... | 37 | ..... | 2 | ..... | ..... | 40 | ..... | ..... | ..... | ..... | 3 | 2 | 5 | 45 |
| Big Soldier Run and Sprague, | 2 | ..... | 680 | ..... | 76 | 19 | 25 | 802 | 1 | 5 | 7 | 2 | 27 | 4 | 46 | 848 |
| Black Diamond No. 1, | 1 | ..... | 119 | ..... | 10 | 2 | 6 | 138 | ..... | 1 | 3 | 3 | 2 | 2 | 11 | 149 |
| Black Diamond No. 2, | ..... | ..... | 91 | ..... | 8 | 1 | 6 | 106 | ..... | 1 | 1 | 2 | 3 | 1 | 8 | 114 |
| Beale, | 1 | ..... | 45 | ..... | 3 | ..... | 1 | 50 | ..... | 1 | ..... | ..... | 3 | 1 | 5 | 55 |
| Beaver, | 1 | ..... | 122 | ..... | 7 | 14 | 1 | 145 | ..... | 2 | 3 | ..... | 13 | 4 | 22 | 167 |
| Claytonia, | 1 | ..... | 23 | ..... | 2 | ..... | 1 | 27 | 1 | 1 | ..... | ..... | ..... | 1 | 3 | 30 |
| Chestnut Ridge, | 1 | ..... | 79 | ..... | 6 | 1 | ..... | 87 | ..... | 1 | 3 | 2 | 4 | 2 | 12 | 99 |
| Catfish Run, | 1 | ..... | 51 | ..... | 4 | ..... | ..... | 56 | ..... | 1 | ..... | ..... | 3 | 1 | 5 | 61 |
| Cherry Run, | 1 | ..... | 40 | ..... | 2 | ..... | ..... | 42 | 1 | 1 | 1 | 1 | ..... | 1 | 5 | 48 |
| Carver, | 1 | ..... | 112 | ..... | 8 | 2 | ..... | 123 | ..... | 1 | 3 | 3 | 1 | 2 | 10 | 133 |
| Connessing, | 1 | ..... | 45 | ..... | 2 | ..... | 2 | 50 | 1 | 1 | ..... | ..... | 1 | 1 | 4 | 54 |
| Cannelton, | 1 | ..... | 29 | ..... | 2 | ..... | ..... | 32 | 1 | 1 | ..... | 1 | 1 | 1 | 5 | 37 |
| Church Hill, | 1 | ..... | 15 | ..... | 2 | ..... | 5 | 23 | 1 | ..... | ..... | 2 | 3 | 1 | 7 | 30 |
| Diamond.* | 1 | ..... | 40 | ..... | 4 | ..... | 1 | 46 | ..... | 1 | ..... | ..... | 3 | 1 | 5 | 51 |
| Darlington, | 1 | ..... | 8 | ..... | 1 | ..... | ..... | 10 | ..... | ..... | 1 | ..... | ..... | ..... | 1 | 11 |
| Enterprise, | 1 | ..... | 23 | ..... | 2 | ..... | 2 | 28 | ..... | ..... | 1 | ..... | 3 | ..... | 4 | 32 |
| Excelsior, | 1 | ..... | 85 | ..... | 6 | ..... | 3 | 95 | ..... | 2 | 2 | 1 | 4 | 2 | 11 | 106 |
| Eagle, | 1 | ..... | 60 | ..... | 3 | ..... | 6 | 70 | 1 | 1 | ..... | 1 | ..... | ..... | 3 | 73 |
| Fairmount Nos. 1 and 3, | 1 | ..... | 250 | ..... | 21 | 7 | 10 | 289 | 1 | 4 | 2 | ..... | 21 | 4 | 32 | 321 |
| Fairmount No. 2, | 1 | ..... | 95 | ..... | 9 | 4 | 8 | 117 | 1 | 5 | 3 | ..... | 11 | 4 | 24 | 141 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fairmount No. 4, | 1 | | 95 | | 9 | 3 | 8 | 116 | | 3 | 5 | | 13 | 4 | 25 | 141 |
| Gilpin, | 1 | | 46 | | 3 | | | 50 | | 1 | | 1 | 2 | 1 | 5 | 55 |
| Glen, | 1 | | 48 | | 5 | | 2 | 56 | | 1 | | | 6 | 2 | 9 | 65 |
| Gomersal, | 1 | | 30 | | 2 | | 3 | 36 | | | 1 | | 1 | 2 | 4 | 40 |
| Hallville, | 1 | | 40 | | 4 | | 1 | 46 | | 1 | 2 | 2 | 2 | 2 | 9 | 55 |
| Haddon, | 1 | | 47 | | 3 | | | 51 | | 1 | | 1 | 1 | 2 | 5 | 56 |
| Hill, | 1 | | 50 | | 6 | 1 | 3 | 61 | 1 | 1 | 1 | 3 | 2 | 1 | 9 | 70 |
| Henry Bros., | 1 | | 27 | | 3 | 1 | | 32 | | 1 | | | | 1 | 2 | 34 |
| Hamilton, | 1 | | 175 | | 9 | 2 | 2 | 189 | | 1 | | | 8 | | 9 | 198 |
| Jewell, | 1 | | 38 | | 2 | 1 | 2 | 44 | 1 | 1 | 2 | 1 | 1 | 1 | 7 | 51 |
| Keystone No. 1, | 1 | | 36 | | 3 | | 1 | 41 | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 47 |
| Keystone No. 2, | 1 | | 49 | | 4 | | 1 | 55 | 1 | 1 | | 1 | | 1 | 4 | 59 |
| Keystone, | 1 | | 55 | | 3 | 1 | 1 | 61 | 1 | 1 | 1 | 3 | 2 | 2 | 10 | 71 |
| Kerr, | 1 | | 10 | | | | 1 | 12 | 1 | | | | | | 1 | 13 |
| Kirkpatrick, | 1 | | 20 | | 2 | | | 23 | 1 | | | | | | 1 | 24 |
| Leechburg No. 4, | 1 | | 34 | | 1 | | | 36 | | | | | 2 | 2 | 4 | 40 |
| Lake Erie, | 1 | | 50 | | 4 | 1 | 1 | 57 | | 1 | | | 1 | 1 | 3 | 60 |
| Mizner, | 1 | | 94 | | 5 | 1 | 2 | 103 | | 1 | | | 2 | 2 | 5 | 108 |
| Mehard, | 1 | | 94 | | 8 | | 10 | 113 | | 1 | 1 | | 6 | 2 | 10 | 123 |
| Mineral Ridge, | 1 | | 40 | | 5 | | 2 | 48 | | 1 | | 2 | 2 | 1 | 6 | 54 |
| Mahoning, | 1 | | 15 | | 1 | | | 17 | | | 1 | | 3 | | 4 | 21 |
| Monarch, | 1 | | 20 | | 2 | | 4 | 27 | | 1 | | 1 | 1 | | 3 | 30 |
| Oak Ridge, | 1 | | 228 | | 14 | 6 | 3 | 252 | | 3 | 3 | | 15 | 2 | 23 | 275 |
| Ormsby Slope, | 1 | | 65 | | 6 | | 4 | 76 | 1 | 1 | 2 | 2 | 3 | 1 | 10 | 86 |
| Pine Run, | 1 | | 42 | | 2 | | 1 | 46 | | | | | 2 | 2 | 4 | 50 |
| Pine Creek, | 1 | | 49 | | 3 | | 1 | 54 | | 1 | | 2 | 4 | 3 | 10 | 64 |
| Penn, | 1 | | 50 | | 5 | 2 | 2 | 60 | 1 | 1 | | | 6 | 2 | 10 | 70 |
| Pardoe, | 1 | | 80 | | 10 | | 3 | 94 | | 1 | 3 | 2 | 3 | 2 | 11 | 105 |
| Riverview, Westmoreland county, | 1 | | 32 | | 1 | | | 34 | | 1 | | 1 | | 2 | 4 | 38 |
| Riverview, Armstrong county, | 1 | | 100 | | 6 | 2 | 4 | 113 | | 1 | 1 | | 4 | 7 | 13 | 126 |
| Rock Point, | 1 | | 80 | | 5 | 1 | 2 | 89 | | 1 | | | 5 | 2 | 8 | 97 |
| Royle, | 1 | | 37 | | 4 | | | 42 | | 1 | | 1 | 1 | 1 | 4 | 46 |
| Summerville or Carrier Bros., | 1 | | 22 | | 1 | | | 24 | | | | | | 3 | 3 | 27 |
| Sprague,§ | | | | | | | | | | | | | | | | |
| Stage and Keister, | 1 | | 20 | | 3 | | 1 | 25 | | 1 | | | 2 | | 3 | 28 |
| Stoneboro No. 2, | 1 | | 82 | | 17 | | 9 | 109 | | 2 | 1 | 3 | 5 | 1 | 12 | 121 |
| Stoneboro No. 3, | 1 | | 60 | | 3 | 1 | 5 | 70 | | 1 | 2 | 2 | 4 | 1 | 10 | 80 |
| Sterling, | 1 | | 61 | | 4 | | | 66 | | 1 | | | 4 | | 5 | 71 |
| Spears, | 1 | | 15 | | 1 | | | 17 | | | 1 | | | 1 | 2 | 19 |
| State Line, | 1 | | 88 | | 7 | 1 | | 97 | | 2 | 2 | 1 | 7 | 1 | 13 | 110 |
| Standard, | 1 | | 82 | | 5 | | 3 | 91 | 1 | 1 | 2 | | 4 | 1 | 9 | 100 |
| Thompson Run, | 1 | | 60 | | 5 | 2 | 2 | 70 | | 1 | | | 4 | 2 | 7 | 77 |
| West Penn, | 1 | | 26 | | 2 | | | 29 | | 1 | | | 1 | 1 | 3 | 32 |
| Witch Hazel, | 1 | | 29 | | 3 | | | 33 | | 2 | 2 | | | 1 | 5 | 38 |
| Total, | 70 | | 4,903 | | 398 | 82 | 168 | 5,621 | 19 | 78 | 67 | 54 | 257 | 105 | 580 | 6,201 |

§ The report of this mine is included with that of Big Soldier Run.
* Approximated by the Inspector.

TABLE No. 4—List of Fatal Accidents that occurred in and about the Mines of the Third Bituminous Mine District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|
| April 1, | Frank Harker, ..... | Miner, ..... | 24 | M. | 2 | Fairmount No. 1, ..... | Armstrong, ..... | Was almost instantly killed by a fall of roof consisting of "bony" and clay of several hundred weight, while he was loading a mine wagon with coal. Harker was taking out a room rib in No. 7 butt entry in company with Valentine Darr, another miner, and both men were engaged loading the mine wagon at the time of the accident. Darr heard the roof and rib cracking and he suggested to Harker that they retire to a place of safety until the squeeze had subsided and they were both acting upon the suggestion when the rock fell which caught Harkins before he could get past the mine wagon. Darr (as he stated in his testimony) only escaped by a hair's breadth. Both men were experienced and careful miners, and from the testimony produced at the investigation and from the appearance of the place after the accident I am of the opinion that they had used the necessary precautions to make their working place safe. On making an examination of this mine, I discovered in certain portions of it that the roof was extremely treacherous and unless the miners exercise very good judgment in the use of timber they are in great danger of losing their lives. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Aug. | 6, | John Robertson, ..... | Miner, .... ..... | 30 | M. | 3 | Fairmount No. 2, ..... | Armstrong, ..... | Was killed instantly by a fall of "top" coal. He was working with Isaac Mortimor taking out a room rib when he lost his life. The coal seam where the ribs were being drawn is very much disturbed by clay veins, which necessitates the miners using extra care. At this point in the mine the coal seam is about seven feet thick, which is separated near the centre into two distinct benches. Some of the lower bench coal had been excavated, leaving a considerable portion of the top coal hanging in a very loose condition. Both men were aware that the top coal was in a very unsafe condition and Mortimor had advised Robertson not to work under nor in front of it, but the advice was not heeded as he went under the loose coal to knock down some coal. While Robertson was doing this, the top coal fell upon him with fatal results. Both men were experienced miners and knew of the danger they were in if they attempted to work under the top coal, owing to its loose and faulted condition. |
| Sept. | 2, | John Custer, ..... | Miner, ..... | 41 | M. | 4 | Royle, ..... | Butler, ..... | Custer and another man were taking out a room rib when the accident occurred. The men had gone into the mine at 6 o'clock A. M., and Custer was fatally injured between eight and nine o'clock. Wade had loaded two mine wagons and Custer had just completed loading the third one when a flat iron shaped piece of slate fell from the roof upon him, causing his death. Custer had sounded the roof just prior to its falling upon him and had discussed with his partner the propriety of setting posts to support it, and they had agreed to put them up after the shot or loose coal was all loaded, but the delay proved fatal for Custer. By all appearance the working place of those men was reasonably well posted. There was no extraordinary danger in drawing the room ribs, as the roof generally all through this mine is a very strong and compact shale and a miner may work safely by exercising ordinary care. |

TABLE No. 4.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|
| Sept. 22. | Joseph Orrel, ..... | Miner, ..... | 28 | S. .... | | Big Soldier Run, ..... | Jefferson, ..... | Orrel was a loader after a mining machine. His room had been undercut the night before the accident to a depth of five feet and on the following morning he fired two or three shots in the coal, and after firing the last one he immediately returned to the face of the room when a large portion of the roof caved in upon him, inflicting such severe injuries that he died from the effects in about twelve hours. The place where Orrel was working had a very treacherous roof, having numerous smooth "slips" running in all directions, and in addition a great deal of water was in the roof strata, thereby necessitating cross barring over the roadway to hold it in place. It was very evident that the blown out coal from the shots had knocked out some of the posts thereby allowing the roof shale to fall in upon Orrell. The place was somewhat dangerous and was rendered extremely so, owing to so much powder being used to break down the coal. I ordered that no more work should be done in the place for the present. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Oct. | 25, | Peter Nugent, ..... | Miner, ..... | 28 | S. | .... | Big Soldier Run, ..... | Jefferson, ..... | Nugent was fatally injured by a fall of coal while he was taking out a chain pillar. He was shoveling some binder slate from beneath the undercut coal, when the whole mass fell upon him. He had two open ends to the stump of coal which he was excavating, and in addition his undercutting had reached a "false slip" or sooty cleat thereby making the mined coal extremely dangerous for a miner to work in front of. To say the least, it was gross carelessness under the existing conditions for a practical miner, such as he was considered to be, to work in front of the loose mass of coal without having set sprags to it, or taking it down. He should not have taken such a risk, knowing that the place was under a squeeze. Nugent was working with another miner, named Richard Ramsey, and both men were considered good, practical miners. Nugent lived some hours after the accident. |
| Nov. | 8, | David Love, ..... | Engineer, ..... | 58 | M. | 7 | Stoneboro No. 2, ..... | Mercer, ..... | These three men were the victims of a boiler explosion. Love was killed instantly but Dowlar lived for one day and Jackson for about two days after the explosion, but neither gained consciousness. The real cause of the explosion is a mystery and it is likely to remain so, as the only one likely to know the condition of the boiler was killed; the reasonable supposition, however, is that the engineer allowed an excessive pressure of steam to be carried. The superintendent of the mine allowed the engineer to work with only 70 pounds steam pressure. Possibly the engineer had allowed the water in the boiler to become too low. Love, owing to the position in which he was found, had been doing something to the boiler, as he was in the boiler house when the explosion occurred. Jackson and Dowlar were car trimmers and had gone into the boiler house to take their lunch and were sitting upon the brick work on the side of the boiler when the explosion occurred. The boiler was situated outside of the mine near the tipples, and was used for supplying steam for the hoisting engine which hauled the coal up the slope. There was nothing developed at the inquest to show that the boiler was unsafe or defective, neither did my own |
| | 8, | Joseph Dowlar, ..... | Laborer, ..... | 59 | S. | .... | Stoneboro No. 2, ..... | Mercer, ..... | |
| | 8, | John Jackson, ..... | Laborer, ..... | 62 | M. | 3 | Stoneboro No. 2, ..... | Mercer, ..... | |

21—10—97

TABLE No. 4.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | investigation reveal that it had been in bad condition. The boiler was made of the best quality of steel plates five-sixteenths of an inch thick. Spring water was used. There was no scale discovered on the plates of the boiler and the plates in any part of it were not less than one-fourth of an inch thick. It was twenty-eight feet long and forty-eight inches in diameter. Sixteen feet of it, nearly in its original form and condition, was carried or blown for a distance of one thousand and fifty feet. Love had almost a life's experience as an engineer and was considered a competent man.<br>COPY OF INQUISITION.<br>Commonwealth of Pennsylvania, County of Mercer:<br>An inquisition taken at Stoneboro in said county before Henry G. Lamb, coroner of said county, and J. P. Hines, G. W. Porter, H. W. Tarr, W. H. Milford, W. H. McIntire, L. W. Odell, jurors, charged to inquire upon behalf of the Commonwealth as to how and in what manner David Love, here lying dead, came to his death, who, upon their respective oaths, do say that it appears from a view of the body and from the evidence of witnesses examined by us, that the said David Love came to his death at No. 2 mine of the Mercer Iron and Coal Company in said county upon the 8th day of November, 1897, from injuries caused by the explosion of a steam |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | boiler, and said coroner and jurors do further say upon their respective oaths that there is no evidence to indicate that the said boiler was known to be in an unsafe condition or defective in any particular and that no blame attaches to the said company or its managers or surviving employes. Henry G. Lamb, Coroner. |
| Nov. | 16, | John Steele, ..... | Miner, ..... | 20 | S. .... | Cherry Run, ..... | Clarion, ..... | Was killed by a fall of roof slate while working in his room. A day or two before the accident he had been shooting down the roof in the roadway to make height for the mules so that they could get into his room to haul out the loaded wagons. It seems that while he was doing this work he had left hanging a large slab of slate which had been shattered and loosened from the effects of the last shot. He had been mining at the wall face and on hearing the slate giving way it appears that he was trying to get to a place of safety traveling close to the pillar which was along the side of the road, but while making his escape he was caught by the edge of the stone and squeezed to death. He met his death early in the morning but the body was not discovered until between four and five o'clock in the evening. The driver had called to him from the entrance to his room about nine o'clock in the morning, but getting no response he presumed that the boy was not at work, consequently he did not call again during the day. The roof was of a very compact shale and such as would be considered a very safe place in which to work. Had he taken down the shot stone there would have been no danger. Possibly the boy was inexperienced in mining, although he had been working in the mines for some years. |
| Nov. | 24, | George Dicks n, ..... | Trapper, ..... | 16 | S. .... | Sl rague, ..... | Jefferson, ..... | Received fatal injuries from being squeezed between a loaded and an empty mine wagon. It seems that at the time of this accident a loaded and an empty trip of mine wagons at the mouth of Nos. 22 and 23 butt entries and on the empty track of the siding on the main entry at this point had collided. In order that the drivers hauling in these butt entries should not accidentally run into the drivers who were hauling beyond this point in the main entry, young |

TABLE No. 4.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Dixon was stationed at the entrance to Nos. 22 and 23 butt entries, so that the drivers hauling therefrom would not run into the trips of cars passing into the inner workings, but instead of the boy attending to his duty at the assigned station he went in along with the driver who was hauling in the butt entry, and while coming out on the return loaded trip of cars, while standing on the bumper of the first car, he was caught between the first car on the loaded trip and the empty trip of cars going into the main entry. The driver who was going into the main entry workings which were situated beyond this point, observed the condition of things and called to the boy to "look out," which was a warning for him to jump off the wagon, but he unfortunately failed to do so and the accident occurred. When the boy was hurt it was supposed by all who were there that his injuries were of a very trifling nature, and in fact his attending physician thought that he would be around at work again in a few days, but he lived only about forty-eight hours. |

TABLE No. 5—List of Non-Fatal Accidents that occurred in and about the Mines of the Third Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Jan. 6. | Pard Meals, | Mule driver, | 26 | S. | Mizner, | Butler, | Leg broken by mine wagons. |
| 7. | Michael Weaver, | Miner, | 33 | M. | Briar Ridge, | Clarion, | Face and head cut by a fall of roof slate. |
| 22. | Lew White, | Laborer, | 24 | S. | Big Soldier Run, | Jefferson, | Finger cut off by a fall of roof slate. |
| Feb. 6. | John Kelly, | Miner, | 60 | S. | Big Soldier Run, | Jefferson, | Three fingers taken off by a mine wagon; wheel passed over them. |
| 6. | John Dixon, | Mule driver, | 41 | M. | Big Soldier Run, | Jefferson, | Finger bruised between a tail chain hook and the hook of a draw bar of a mine wagon. |
| Mar. 5. | Christ. Ross, | Mule driver, | 20 | S. | Big Soldier Run, | Jefferson, | Bruised by mine wagons. |
| 16. | William Parton, | Miner, | 41 | M. | Royle, | Butler, | Severely injured by a rock thrown from a shot of dynamite while excavating a drain. |
| 20. | Lotas Larveg, | Miner, | 32 | M. | Lake Erie, | Butler, | Collar bone broken by a fall of coal. |
| April 17. | G. M. Bailey, | Miner, | 48 | M. | Oak Ridge, | Armstrong, | Leg broken by a fall of coal. |
| May 12. | Charles Battles, | Miner, | 18 | S. | Catfish Run, | Clarion, | Hand bruised while attempting to put a sprag into the wheel of a mine wagon. |
| 18. | George Shearer, | Mule driver, | 23 | M. | Avonmore, | Armstrong, | Bruised on the head and body by a fall of coal. |
| 25. | James Blystone, | Miner, | 18 | S. | Avonmore, | Armstrong, | Burned by an explosion of powder while tamping a shot in a bore hole. |
| July 27. | Rocco Caruso, | Miner, | 44 | M. | Beaver, | Lawrence, | Back injured by a fall of roof slate. |
| Aug. 15. | Thomas J. Hofman, | Laborer, | 40 | M. | Oak Ridge, | Armstrong, | Leg broken by haulage machinery. |
| Sept. 14. | Charles Frank, | Miner, | 45 | M. | Beale, | Armstrong, | Collar bone broken by a fall of coal. |
| Nov. 8. | Albert Jatheimer, | Blacksmith, | 32 | M. | Stoneboro No. 2, | Mercer, | Severely injured by a steam boiler explosion. |
| 8. | Hays Fry, | Laborer, | 22 | S. | Stoneboro No. 2, | Mercer, | Severely injured by a steam boiler explosion. |
| 22. | H. Walthour, | Mule driver, | 17 | S. | Bagdad No. 2, | Westmoreland, | Body bruised by a fall of roof slate. |
| Dec. 4. | Oliver Fulmer, | Miner, | 32 | M. | Sprague, | Jefferson, | Leg broken by a fall of coal. |
| 10. | Daniel Ferris, | Miner, | 28 | S. | Catfish Run, | Clarion, | Arm broken by loaded mine wagon. |

TABLE No. 5.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| 14, | L. Woolcutt, | Mule driver, | 42 | M. | Lake Erie, | Butler, | Leg broken by mine wagons. |
| 24, | George Keister, | Miner, | 47 | S. | Catfish Run, | Clarion, | Injured by a fall of rock. |
| 28, | Black Funk, | Miner, | 35 | M. | Carrier Brothers, | Jefferson, | Bruised between a door frame and a mine wagon. |
| 29, | Peter Miller, | Miner, | 31 | M. | Hamilton, | Jefferson, | Arm broken by a fall of roof slate. |

# FOURTH BITUMINOUS DISTRICT.

(TIOGA, POTTER, BRADFORD, LYCOMING, CLINTON, CAMERON, McKEAN AND ELK COUNTIES, AND ALL THOSE MINES IN CLEARFIELD COUNTY ADJACENT TO THE LOW GRADE DIVISION OF THE ALLEGHENY VALLEY RAILROAD; ALSO THE MINES ADJACENT TO THE CLEARFIELD AND SUSQUEHANNA BRANCH OF THE PENNSYLVANIA RAILROAD; ALSO THE MINES ADJACENT TO THE BUFFALO, ROCHESTER AND PITTSBURGH RAILROAD IN JEFFERSON AND CLEARFIELD COUNTIES.)

---

Blossburg, Pa., February 10, 1898.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I herewith submit my annual report as Inspector of mines for the Fourth bituminous coal district of Pennsylvania for the year ending December 31, 1897, together with statistical tables compiled from the operators' reports returned to my office. The returns show an aggregate increase of 779,178 tons over that of the preceding year, which is due largely to an increased number of mining machines being used, and to steadier employment generally throughout the district.

The total number of fatal accidents has been very much decreased. The ventilation and drainage of the mines is fairly good, and continues to improve throughout the district.

One case of violation of section 1, article XXI, of the Bituminous Mining Law came to my notice during the year at the Berwind White shaft mine, in Clearfield county. The offense was of such a serious character and the evidence as to guilt being so clear that I had the miner arrested and bound over for court. When the case came before the court for trial he pleaded guilty, whereupon the court reprimanded him and sentenced him to pay the costs. The circumstances and facts of this case are more fully given in the body of the report.

Respectfully submitted,

JAMES N. PATTERSON,

Inspector.

Mining Statistics.

| | |
|---|---|
| Number of mines in district, | 66 |
| Total production in tons of coal, | 6,541,943 |
| Total production in tons of coke, | 441,946 |
| Quantity of coal, in tons, used for steam and heat, | 104,778 |

| | |
|---|---|
| Sold to local trade and used by employes, | 29,726 |
| Railroad shipments, in tons, of coal, | 4,848,677 |
| Number of days work, | 7,364 |
| Number of persons employed, | 9,581 |
| Number of fatal accidents, | 9 |
| Number non-fatal accidents, | 31 |
| Number of kegs of powder, as per operators' reports, | 37,984 |
| Number of pounds of dynamite used, | 23,896 |
| Number of steam boilers, | 118 |
| Number of horses and mules, | 905 |
| Number of mine locomotives, | 32 |
| Number of coke ovens, | 1,191 |
| Number of tons produced per each fatal accident, | 817,742 |
| Number of tons produced per each non-fatal accident, | 204,435½ |

Classification of Fatal Accidents.

| | |
|---|---|
| By falls of coal, | 4 |
| By mine cars, | 1 |
| By falls of roof, | 2 |
| By mine motor, | 1 |
| Powder explosion, | 1 |
| Total, | 9 |

Classification of Non-Fatal Accidents.

| | |
|---|---|
| By falls of coal, | 5 |
| By mine cars, | 13 |
| By explosion of powder, | 4 |
| By falls of roof, | 8 |
| By mining machine, | 1 |
| Total, | 31 |

Elk County Mines.

Hazel Dell.—On the date of my last visit to this mine, I found it in good condition.

Dagus Mines,—Were each, on my last visit, found in good condition as to ventilation and drainage.

Paine Mine.—Was exhausted during the year.

Noble No. 1.—Mine not in operation on my last visit, but on the previous examination I found it in fair condition.

Noble No. 2.—The general condition of this mine was fair. All parts of the workings are fairly well ventilated. The drainage was

found good in some parts and not so good in the other parts. An electric haulage plant has been put in operation during the year.

Glen Fisher.—Was idle during the entire year.

St. Mary's Mines.—The general condition of each of these mines is fair.

Shawmut Mines Nos. 1 and 2.—The general condition of both mines was fair in regard to ventilation and drainage. In No. 1, I measured 16,500 cubic feet of air passing per minute, which is well distributed throughout the workings. In No. 2, I measured 15,900 cubic feet of air passing per minute, which is also well distributed.

Mead Run Mines Nos. 1and 2.—These mines are in much better condition than formerly. The ventilation has been considerably improved by the erection of stoppings and doors to conduct the air current around the working places. More attention is being given to the requirements of the law with the result that better conditions exist throughout the entire mine.

Shawmut No. 4.—This is a new opening made during the year.

Shawmut No. 8.—This is a new opening which was made about the beginning of the year and is equipped with mining machines of the Harrison type.

## Jefferson County Mines.

Coal Glen Mines, Nos. 2 and 3.—The general conditions of these mines has been very good during the year. Another drift is being opened into the lower vein, which looks very favorable at present. The coal is four feet eight inches in height. This makes the second opening to this vein. The ventilation is now produced by a Clark fan five feet in diameter. A larger fan is being erected, which will be driven by a twenty-five horse power gas engine.

Kurtz Mine.—This mine was not in operation when last visited.

Walston No. 1.—Mine not in operation when last visited.

Walston Nos. 2 and 3.—These mines are in good condition. Everything is being done to keep them in a healthful and safe condition. They have put in a new haulage engine, and sunk a shaft near the face of the workings for drainage and ventilation. They are building a very large washer for preparing coal for coke, which will soon be completed.

Brock Mines.—These mines are not in the best condition. The drainage and ventilation need improvement. The management of these mines was changed on the first of this year and it is hoped that better results will follow soon.

Adrian Mine.—The quantity of air in circulation in this mine when last measured was 129,600 cubic feet per minute, which was being fairly well distributed throughout the workings. On some occasions considerable volumes of explosive gas are encountered in the seventh

and eighth right headings, also in the eighth and ninth left headings, rendering the use of locked safety lamps necessary. Another tail rope haulage has been put in fourth left heading.

Eleanora No. 1.—This mine is in good condition as usual. All parts of the workings were, at the time of my last visit, well supplied with fresh air. Quantity of air passing at the outlet, 75,000 cubic feet per minute.

Eleanora Nos. 2 and 3...The general condition of these mines has been very good during the year. Ventilation is produced by a twenty-five foot fan. The average volume of air passing at the inlet per minute was 160,000 cubic feet, which was being well distributed throughout all the workings. The large output of coal at this mine is practically all mined by mining machines of the Ingersoll and Harrisan type. They have in operation thirty-seven of these machines, which are equal to seventy-four in effect on account of being run day and night. At the No. 2 mine boilers have been erected on the line of the main slope, about 3,000 feet from the main entry, which are now pumping the bulk of the water through bore holes at that station. They have also increased the trackage room, both above and below the tipple. A tail rope haulage system, about 3,000 feet long, has been put in, thirty-four new coke ovens and fifteen houses for the workmen have also been built.

Beechtree No. 3 Mine.—When last visited the ventilation and drainage in parts of the mine required improvement.

Beechtree No. 2.—This mine has been in operation only about one-fourth time during the year. I measured 65,000 cubic feet of air per minute at the outlet, which was being distributed throughout all the workings.

London Mine.—This is a large mine employing a great number of men. Mining machines are used to undercut the coal. Blasting operations are carried on very extensively, and it requires very brisk air currents to clear away the powder smoke as fast as it is produced. The two small fans now in use are not sufficient for the work required, and they should be dispensed with and a more powerful one provided. The quantity of air in circulation when last examined was 49,500 cubic feet per minute, which was being fairly well distributed throughout the workings.

Clarion No. 1.—This mine is in good condition, both as to ventilation and drainage.

Clarion Nos. 2 and 3.—Are in good condition in all respects.

Clarion No. 4 was opened in the early part of 1896. It has two openings, one on each side of the hill, the outside haulage being by two steam locomotives and the inside haulage by mules. It is intended to instal machine haulage, either by ropes or electricity, in the near future. They commenced loading coal for the trade on January

1, 1897, the present capacity being 1,400 tons per day. A complete Jeffrey electric mining plant was installed at the mine during the past summer and the machines, five in number, were started October 1. The equipment of the plant is as follows: One 225 horse power Ball automatic engine, two 125 horse power boilers, one 50 K. W. generator, made by the Ridgway Dynamo and Engine Company. The plant commenced with five machines, which have since been increase to eight, and has a capacity for twelve machines. The building is of brick, with iron truss roof and corrugated iron covering. The plant is said by experts to be one of the most complete mining machine plants in the country, while the results obtained from the machines compare favorably with the results obtained from the same height of coal anywhere. The coal is three feet thick, and the lower bench has a streak of bony coal in it which turns into slate at times and has no parting with the coal. The machines generally cut above or below this bony streak when it is possible, but at times they cut through it successfully, the only effect being a more frequent change of bits.

## Tioga County Mines.

Gurnee Mines.—Were exhausted during the year.

Antrim No. 1.—Has not been in operation during the year.

Antrim No. 5.—This mine, as usual, is in good condition. All parts of the workings were, at the time of my last visit, well supplied with fresh air. Quantity of air passing at the outlet 62,000 cubic feet per minute.

Gardner Mine.—This is a new mine opened during the year.

Bear Run.—The general condition of this mine was good, but some of the details in matters pertaining to the ventilation need closer attention. I observed that some of the doors were left standing open much longer than was necessary. I called the attention of those in authority to the condition of the mine, with the result, as I have been informed that the ventilation has since been very much improved.

Arnot Nos. 3 and 5.—No. 3 mine was found in good condition.

No. 5.—This mine, at date of my last visit, was in a very satisfactory condition. A portion of the workings are under water, for which reason they are not being operated at present, but no danger whatever exists to the men working in other parts of the mine from this source. The ventilation and drainage in all the present working parts of the mine were in fair condition at the date of my last examination.

Fall Brook No. 2.—The general conditions of this mine are very good. The volume of air passing at the inlet per minute was 64,000 cubic feet, which was well distributed throughout the workings.

Fall Brook No. 7.—This is a new opening and is located one and a half miles north from No. 2 chute. The tail rope system of haulage was put in this mine in last December.

### Bradford County Mines.

Long Valley Mines, Nos. 1 and 2.—These mines were not in operation when last visit was made. I examined both mines and found them, as regards ventilation and drainage, in a satisfactory condition. The inlet air measurement of No. 1 showed a volume of 32,000 cubic feet, and No. 2, 29,000 cubic feet.

### Lycoming County Mines.

Red Run Mines.—Three in number. Mines Nos. 2 and 3 are in good condition as to both ventilation and drainage. The ventilation at face of workings in No. 1 is not good, by reason of leakage of the air current through breaks in the overlying strata between the inlet and the face of the workings. They propose to remedy this by a drift opening near the face of the workings.

### McKean County Mines.

Instanter Mine.—The ventilation here is good. The drainage was not good, but has recently been much improved by a water ditch constructed along the main haulage way, 150 yards in length, with an average depth of two feet.

Lyman Mine.—The condition of this mine is fair as to both ventilation and drainage.

### Clinton County Mines.

Kettle Creek Mines. . .Nos. 1 and 2 are under very able management and in excellent condition. They are laid out and conducted on scientific priciples, and close attention is given to every detail by the general manager.

### Clearfield County Mines.

Williamsport Mines.—These mines were found in good condition. Among the improvements made here during the year was the installation of a complete tail rope haulage plant, and the erection of a ventilating fan.

Mount Carmel.—Not in operation during the year.

Winterburn.—Not in operation during the year.

Brittanic Mine.—Not in operation when last visited.

Cataract Mines.—Not in operation when last visited.

Helvetia Slope.—This mine was found to be in fair condition. They have put in a new haulage road, 3,000 feet in length, also retimbered

the air-way from the fan to the main air-course, which will improve the ventilation. A new man-way is in course of construction, and at present they are setting boilers and compressers near Stanley, where they intend to make the main company station.

Rochester Mine.—This mine was in operation 190 days during the year. Volume of air at outlet, 84,500 cubic feet per minute, which was well distributed throughout the workings.

Sandy Lick.—A connection is being made between this and the Rochester mine, and they will be in the future operated as one mine, under the direction and control of one mine foreman.

Berwind Shaft Mine.—Operations here were completed so far as to be able to mine coal for shipment during 1896. The rope haulage system is used for transportation. The machinery is located in a chamber west from the bottom of the shaft. The engine used is what is known as a "double engine," and is geared four to one. The drums are sixty-six inches in diameter and thirty nine inches long, and two miles of rope can be carried on each drum. The haulage rope is seven-eighths of an inch thick, and the tail rope three-fourths of an inch in thickness. The trip can be moved at the rate of from five to six miles per hour. The water is drained to a sump under the pumps, from whence it is taken and can be held in check for twenty-four hours without interfering with the working of the men, so as to allow plenty of time for repairs in case of accidents to the pumps. The coal is mined by machines, run by power furnished by a Norwalk compressor, twenty-eight by thirty inches. A double hoisting apparatus is used to carry the product to the surface. The air is supplied by a 30-foot fan. The battery of boilers has a capacity of 1,200 horse power. This being a gaseous mine, where no open lights are permitted, a miner having matches on his person struck one to light his pipe, contrary to the mining laws, in such cases provided, and was arrested and taken before a justice of the peace and bound over for trial at the quarter sessions court of the district in which the offense was committed. A true bill having been found against him, he pleaded guilty; was reprimanded by the court and sentenced to pay the cost.

TABLE No. 1.—Showing Location, etc., of Collieries in the Fourth Bituminous Mine District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Arnot Nos. 3 & 5, | Bloss Coal Company, | Tioga, | E. E. Loomis, | Arnot. |
| Antrim Nos. 1 & 5, | Fall Brook Coal Company, | Tioga, | James Pollock, | Antrim. |
| Adrian Nos. 1 & 2, | Rochester & Pittsburgh Coal and Iron Co., | Jefferson, | Samuel A. Rinn, | Punxsutawney. |
| Brittannic, | Geo. Rees & Co., | Clearfield, | Geo. Rees, | Karthaus. |
| Berwind Shaft Colliery, | Berwind & White Coal Mining Company, | Clearfield, | C. E. Sharpless, | Du Bois. |
| Bear Run, | Bloss Coal Company, | Tioga, | E. E. Loomis, | Arnot. |
| Beachtree Nos. 3 & 4, | Rochester & Pittsburgh Coal and Iron Co., | Jefferson, | John B. Ryan, | Beachtree. |
| Cascade No. 1, | Kaul & Hall, | Elk, | Andrew Kaul, | St. Marys. |
| Cascade No. 2, | Kaul & Hall, | Elk, | Andrew Kaul, | St. Marys. |
| Cameron, | Cameron Coal Company, | Cameron, | | |
| Coal Glen No. 1, | Jefferson Coal Company, | Jefferson, | Austin Blakeslee, | Coal Glen. |
| Coal Glen No. 2, | Jefferson Coal Company, | Jefferson, | Austin Blakeslee, | Coal Glen. |
| Cataract No. 1, | Berwind White Coal Mining Co., | Clearfield, | A. J. Cook, | Bellefonte. |
| Clermont, | Buffalo Coal Company, | McKean, | | Clermont. |
| Clarion Nos. 1 to 7, | Northwestern Mining and Exchange Co., | Jefferson, | Joseph Bailey, | Brockwayville. |
| Dagus Mines Nos. 1 to 6, | Northwestern Mining and Exchange Co., | Elk, | Joseph Bailey, | Brockwayville. |
| Eleanora No. 1, | Rochester & Pittsburgh Coal and Iron Co., | Jefferson, | Walter T. Arms, | Eleanora. |
| Eleanora No. 2, | Rochester & Pittsburgh Coal and Iron Co., | Jefferson, | Walter T. Arms, | Eleanora. |
| Fall Brook, | Fall Brook Coal Company, | Tioga, | Anton Hardt, | Wellsboro. |
| Glen Fisher, | Standard Coal and Coke Company, | Elk, | W. M. Harrison, | Williamsport. |
| Hazel Dell, | Kaul & Hall, | Elk, | Andrew Kaul, | St. Marys. |
| Helvetia Nos. 1 & 2, | Rochester & Pittsburgh Coal and Iron Co., | Clearfield, | Thos. Johns, | Helvetia. |
| Instanter, | Buffalo Coal Company, | McKean, | John F. Keating, | Clermont. |
| Karthus, | B. W. C. M. Co., Spear & Cowan contractors. | Clearfield, | A. G. Spears, | Karthus. |
| Kettle Creek No. 1, | Kettle Creek Coal Company, | Clinton, | James Ward, | Bitumen. |
| Kettle Creek No. 2, | Kettle Creek Coal Company, | Clinton, | James Ward, | Bitumen. |
| Kurtz Mine, | Kurtz & Rinn, | Jefferson, | S. A. Rinn, | Punxsutawney. |
| Brock Mines, | Shawmut Coal Mining Company, | Jefferson, | J. G. Dunsmore, | Brockwayville. |
| London Mine, | Jefferson and Clearfield Coal and Iron Co., | Jefferson, | John Reed, | Du Bois. |
| Long Valley, | Long Valley Coal Co., | Bradford, | I. O. Blight, | Towanda. |
| Lyman, | Buffalo Coal Company, | McKean, | John F. Keating, | Clermont. |
| Morris Run Nos. 1 and 2, | Morris Run Coal Mining Company, | Tioga, | W. S. Nearing, | Morris Run. |
| Mt. Carmel, | Mt. Carmel Coal Company, | Clearfield, | S. E. Emerick, | Karthus. |
| Noble Mine, | Shawmut Coal Company, | Elk, | Geo. Mellinger, | Cartwright. |
| Paine Mine, | Kaul & Hall, | Elk, | Andrew Kaul, | St. Marys. |
| Rochester Mine, | Jefferson and Clearfield Coal and Iron Co., | Clearfield, | John Reed, | Du Bois. |
| Red Run, | Red Run Coal Company, | Lycoming, | Dudley Allison, | Roaring Branch. |
| Sandy Lick, | Jefferson and Clearfield Coal and Iron Co., | Clearfield, | John Reed, | Du Bois. |
| Shawmut Nos. 1, 2 & 3, | Shawmut Coal Company, | Elk, | Geo. Mellinger, | Cartwright. |
| Shawmut No. 8, | Shawmut Coal Company, | Elk, | Geo. Mellinger, | Cartwright. |
| St. Marys Nos. 1, 2, 3 & 5, | St. Marys Coal Company, | Elk, | Joseph Eddy, | St. Marys. |
| Williamsport Mines, | Clearfield Coal Company, | Clearfield, | John C. Hirst, | Tyler. |
| Walston No. 1, | Rochester & Pittsburgh Coal and Iron Co., | Jefferson, | Samuel A. Rinn, | Punxsutawney. |
| Walston No. 2, | Rochester & Pittsburgh Coal and Iron Co., | Jefferson, | Samuel A. Rinn, | Punxsutawney. |
| Walston No. 3, | Rochester & Pittsburgh Coal and Iron Co., | Jefferson, | Samuel A. Rinn, | Punxsutawney. |
| Winterburn, | Winterburn Colliery, | Clearfield, | C. M. Blanchard, | Winterburn. |

TABLE No. 2.—Gives the total number of tons of coal mined and tons of coke produced in each Colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Fourth Bituminous District, for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arnot Nos. 3 & 5, | Tioga, | 373,420 | 476 | 2,883 | 4,947 | 365,590 | 242 | 681 | ..... | 4 | ..... | ..... | 3 | 74 | 2 | 150 |
| Antrim Nos. 1 & 5, | Tioga, | 103,422 | ..... | 75 | 1,067 | 28,601 | 151 | 249 | ..... | 3 | ..... | ..... | 4 | 19 | 2 | ..... |
| Adrian No. 1, | Jefferson, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... | ..... |
| Adrian No. 2, | Jefferson, | 745,953 | 136,665 | 25,950 | 2,711 | 518,858 | 273 | 832 | ..... | ..... | 6,550 | 110 | 16 | 125 | 2 | ..... |
| Brittanic, | Clearfield, | 2,200 | ..... | ..... | 200 | 2,000 | 50 | 43 | ..... | ..... | ..... | ..... | ..... | 3 | ..... | ..... |
| Bear Run, | Tioga, | 193,720 | ..... | 1,672 | 315 | 191,733 | 241 | 382 | 1 | 5 | ..... | ..... | 3 | ..... | 4 | ..... |
| Beachtree Nos. 3 & 4, | Jefferson, | 91,573 | ..... | 1,607 | 837 | 80,613 | 231 | 248 | ..... | ..... | ..... | ..... | 5 | 20 | ..... | ..... |
| Berwind Shaft Colliery, | Clearfield, | 84,269 | ..... | 18,000 | 150 | 66,119 | 295 | 94 | 1 | 6 | 800 | 7,900 | 9 | 5 | ..... | ..... |
| Brock Nos. 1, 2 & 3, | Jefferson, | 57,283 | ..... | 1,012 | 326 | 55,915 | 250 | 100 | ..... | ..... | 509 | 100 | ..... | 2 | 2 | ..... |
| Cascade No. 1, | Elk, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cascade No. 2, | Elk, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Coal Glen Nos. 1 & 2, | Jefferson, | 285,500 | ..... | 1,500 | 1,000 | 283,000 | 250 | 325 | ..... | ..... | 2,549 | 4,000 | 2 | 28 | 2 | ..... |
| Cataract Nos. 1 & 2, | Clearfield, | 40,199 | ..... | 35 | 218 | 39,946 | 156 | 86 | ..... | ..... | 338 | ..... | ..... | 18 | ..... | ..... |
| Clermont, | McKean, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cameron, | Cameron, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Clarion Nos. 1 to 7, | Jefferson, | 363,308 | ..... | 937 | 3,007 | 359,364 | 249 | 503 | ..... | 1 | 2,600 | ..... | 4 | 49 | 2 | ..... |
| Dagus Nos. 1 to 6, | Elk, | 456,957 | ..... | 4,018 | 3,082 | 449,857 | 239 | 703 | ..... | 1 | 3,414 | 2,000 | 6 | 55 | 2 | ..... |
| Eleanora No. 1, | Jefferson, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Eleanora No. 2, | Jefferson, | 967,897 | 79,758 | 14,354 | 3,369 | 835,625 | 264 | 1,046 | 3 | 3 | 5,000 | 4,500 | 13 | 127 | ..... | 201 |
| Fall Brook, | Tioga, | 57,401 | ..... | 50 | 950 | 29,082 | 162 | 164 | ..... | ..... | ..... | ..... | 2 | 16 | 1 | ..... |
| Gaines Mines, | Tioga, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Gardiner Mine, | Tioga, | 5,913 | ..... | ..... | ..... | 5,913 | 308 | 50 | ..... | ..... | 104 | 1,163 | ..... | 2 | ..... | ..... |
| Glen Fisher, | Elk, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hazel Dell, | Elk, | 25,155 | ..... | ..... | ..... | 25,155 | 249 | 50 | ..... | ..... | 10 | ..... | ..... | 4 | ..... | ..... |
| Helvetia Nos. 1 & 2, | Clearfield, | 225,950 | 8,158 | 13,519 | 1,700 | 209,495 | 211 | 331 | 1 | ..... | 1,889 | 2,233 | 9 | 39 | ..... | 40 |
| Instanter, | McKean, | 32,333 | ..... | 295 | 994 | 26,866 | 249 | 70 | ..... | ..... | 100 | ..... | ..... | 6 | 1 | ..... |
| Karthus, | Clearfield, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Kettle Creek No. 1, | Clinton, | 157,338 | ..... | ..... | ..... | 157,338 | 251 | 236 | ..... | ..... | 1,360 | ..... | ..... | 30 | ..... | ..... |

TABLE No. 2. —Continued.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kettle Creek No. 2, | Clinton, | | | | | | | | | | | | | | | |
| Kurtz Mine, | Jefferson, | 105,000 | | 100 | 500 | | 225 | 125 | 1 | | 1,200 | | 1 | 16 | | |
| London, | Jefferson, | 367,298 | | 9,000 | | | 239 | 328 | 1 | | | | 8 | 28 | 1 | |
| Long Valley, | Bradford, | 41,588 | | 262 | 611 | 40,715 | 209 | 127 | | | 1,317 | | 2 | 15 | 1 | |
| Lyman, | McKean, | 14,689 | | 176 | 279 | 14,165 | 268 | 25 | | | 25 | 200 | | | | |
| Morris Run Nos. 1 & 2, | Tioga, | 192,017 | | | | | 148 | 563 | | 3 | | | 4 | 41 | | |
| Mead Run Nos. 1 & 2, | Clearfield, | 204,661 | | | | 204,421 | 265 | 290 | | 2 | 2,087 | | | 19 | 1 | |
| Mt. Carmel, | Clearfield, | | | | | | | | | | | | | | | |
| Noble, | Elk, | 63,095 | | | | 62,005 | 252 | 103 | | | 350 | | | 1 | 1 | |
| Paine, | Elk, | | | | | | | | | | | | | | | |
| Rochester Mine, | Clearfield, | 277,649 | | 7,000 | | 270,649 | 190 | 425 | | 1 | | | 10 | 40 | | |
| Red Run, | Lycoming, | 91,735 | | 700 | 1,000 | 90,035 | 244 | 190 | | | 1,294 | 200 | 3 | 7 | 3 | |
| Sandy Lick, | Clearfield, | | | | | | | | | | | | | | | |
| Shawmut Nos. 1, 2, 3 & 8, | Elk, | 187,523 | | | | 185,223 | 235 | 318 | | | 1,913 | | | 25 | | |
| St. Marys Nos. 1, 2 & 3, | Elk, | 32,380 | | | | | 250 | 71 | | | 180 | 40 | | | 1 | |
| Tannerdale, | Elk, | | | | | | | | | | | | | | | |
| Williamsport Mines, | Clearfield, | 113,631 | 27,319 | 1,633 | 682 | 60,557 | 261 | 222 | | | 575 | 250 | 3 | 21 | 1 | 100 |
| Walston No. 1, | Jefferson, | | | | | | | | | | | | | | | |
| Walston No. 2, | Jefferson, | 580,881 | 189,570 | | 1,781 | 189,837 | 257 | 600 | 1 | | 3,800 | 1,200 | 11 | 70 | 3 | 700 |
| Walston No. 3, | Jefferson, | | | | | | | | | | | | | | | |
| Winterburn, | Clearfield, | | | | | | | | | | | | | | | |
| Total, | | 6,541,943 | 441,946 | 104,778 | 29,726 | 4,848,677 | 7,364 | 9,581 | 9 | 32 | 37,984 | 23,896 | 118 | 905 | 32 | 1,191 |

TABLE No. 3—Showing the number of each class of Employes at each Colliery in the Fourth Bituminous District during the year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Arnot Nos. 3 and 5, | 3 | ..... | 450 | ..... | 56 | 18 | 26 | 553 | 2 | 7 | 6 | 73 | 35 | 5 | 128 | 681 |
| Antrim Nos. 1 and 5, | 1 | ..... | 153 | ..... | 18 | 4 | 8 | 184 | 1 | 7 | 4 | 38 | 11 | 4 | 65 | 249 |
| Adrian No. 1, | 2 | 2 | 500 | ..... | 60 | 11 | 46 | 621 | 2 | 10 | 16 | ..... | 181 | 2 | 211 | 832 |
| Adrian No. 2, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Brittanic, | 1 | ..... | 35 | 3 | 2 | ..... | ..... | 41 | ..... | ..... | ..... | ..... | 1 | 1 | 2 | 43 |
| Berwind Shaft Colliery, | 2 | 1 | 52 | ..... | 5 | 1 | 12 | 73 | ..... | 3 | 8 | 1 | 7 | 2 | 21 | 94 |
| Bear Run, | 2 | ..... | 315 | ..... | 3 | 1 | 21 | 342 | 1 | 6 | 5 | ..... | 24 | 4 | 40 | 382 |
| Beachtree No. 3, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Beachtree No. 4, | 1 | ..... | 210 | 3 | 8 | 5 | 3 | 230 | 1 | 3 | 3 | ..... | 10 | 2 | 19 | 249 |
| Brock Nos. 1, 2 and 3, | 1 | ..... | 83 | ..... | ..... | ..... | 5 | 89 | ..... | 2 | 3 | ..... | 5 | 1 | 11 | 100 |
| Cascade No. 1, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cascade No. 2, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Coal Glen Nos. 1 and 2, | 1 | ..... | 287 | ..... | 11 | ..... | 8 | 307 | 1 | 3 | 2 | ..... | 10 | 2 | 18 | 325 |
| Cataract Nos. 1 and 2, | 1 | ..... | 62 | 5 | 7 | 4 | ..... | 79 | ..... | 1 | 1 | 2 | 2 | 1 | 7 | 86 |
| Clermont, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cameron, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Clarion Nos. 1 to 7, | 3 | ..... | 393 | 8 | 26 | ..... | ..... | 430 | 2 | 8 | 3 | 2 | 52 | 6 | 73 | 503 |
| Dagus Nos. 1 to 6, | 3 | ..... | 569 | 15 | 38 | ..... | ..... | 625 | 1 | 16 | 6 | 3 | 46 | 6 | 78 | 703 |
| Eleanora No. 1, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Eleanora No. 2, | 3 | ..... | 722 | 31 | 87 | 9 | 25 | 877 | 2 | 8 | 11 | 1 | 144 | 3 | 169 | 1,046 |
| Fall Brook, | 1 | ..... | 97 | 4 | 16 | 6 | 17 | 141 | 1 | 3 | 4 | 12 | ..... | 3 | 23 | 164 |
| Gardiner, | 2 | ..... | 37 | ..... | 2 | ..... | 5 | 46 | ..... | 1 | ..... | ..... | 3 | ..... | 4 | 50 |
| Glen Fisher, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hazel Dell, | 1 | ..... | 36 | 4 | 4 | ..... | 1 | 46 | 1 | 1 | ..... | ..... | 1 | 1 | 4 | 50 |
| Instanter, | 1 | ..... | 53 | ..... | 5 | ..... | 1 | 60 | ..... | 2 | 2 | 1 | 4 | 1 | 10 | 70 |
| Karthus, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Kettle Creek No. 1, | 1 | ..... | 180 | ..... | 15 | 4 | 2 | 202 | ..... | 3 | ..... | 6 | 24 | 1 | 34 | 236 |

TABLE No. 3.—Continued.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total inside. | |
| Kettle Creek No. 2, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Kurtz Mine, | 1 | ..... | 110 | ..... | 10 | 1 | ..... | 122 | ..... | 2 | ..... | ..... | ..... | 1 | 3 | 125 |
| London Mine, | 1 | ..... | 268 | ..... | 24 | 6 | 8 | 307 | ..... | 3 | 7 | 2 | 9 | ..... | 21 | 328 |
| Long Valley, | 1 | ..... | 84 | ..... | 10 | 3 | 4 | 102 | ..... | 3 | 4 | 5 | 11 | 2 | 25 | 127 |
| Lyman, | 1 | ..... | 19 | ..... | 3 | ..... | 2 | 25 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 25 |
| Morris Run Nos. 1 and 2, | 3 | ..... | 406 | ..... | 50 | 27 | 20 | 506 | 1 | 6 | 3 | 32 | 8 | 7 | 57 | 563 |
| Mead Run Nos. 1 and 2, | 1 | ..... | 250 | ..... | 17 | 2 | 6 | 276 | ..... | 4 | 1 | ..... | 8 | 1 | 14 | 290 |
| Mt. Carmel, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Noble, | 1 | ..... | 84 | ..... | 3 | ..... | 5 | 93 | ..... | 2 | 1 | ..... | 6 | 1 | 10 | 103 |
| Paine, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Rochester, | 1 | 1 | 351 | ..... | 30 | 6 | 8 | 397 | ..... | 4 | 7 | 2 | 14 | 1 | 28 | 425 |
| Red Run, | 1 | ..... | 133 | ..... | ..... | ..... | 11 | 145 | ..... | 4 | 3 | 6 | 30 | 2 | 45 | 190 |
| Sandy Lick, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Shawmut Nos. 1, 2 and 3, | 2 | ..... | 259 | ..... | 24 | ..... | 10 | 295 | ..... | 6 | 1 | 1 | 13 | 2 | 23 | 318 |
| St. Marys Nos. 1, 2 and 3, | 1 | ..... | 59 | ..... | 4 | ..... | ..... | 64 | ..... | 1 | 2 | ..... | 3 | 1 | 7 | 71 |
| Tannerdale, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Williamsport Mines, | 1 | ..... | 155 | ..... | 10 | 2 | 3 | 171 | ..... | 3 | 4 | ..... | 42 | 2 | 51 | 222 |
| Walston No. 1, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Walston No. 2, | 2 | ..... | 338 | ..... | 37 | 16 | 190 | 583 | ..... | 6 | ..... | 9 | ..... | 2 | 17 | 600 |
| Walston No. 3, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Winterburn, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Helvetia Nos. 1 and 2, | 2 | ..... | 260 | 6 | 19 | 6 | 8 | 301 | ..... | 4 | 8 | 1 | 15 | 2 | 30 | 331 |
| Total, | 49 | 4 | 7,010 | 79 | 604 | 132 | 455 | 8,333 | 16 | 132 | 115 | 197 | 719 | 69 | 1,248 | 9,581 |

TABLE No. 4—List of Fatal Accidents that occurred in and about the Mines of the Fourth Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Jan. 21, | Thomas Metcalfe, ..... | Scraper, ..... | 16 | .... | .... | London, ..... | Jefferson, ..... | Fatally injured while scraping from a coal cutting machine; died soon after. |
| Mar. 8, | Michael Micolosh, ..... | Miner, ..... | 24 | S. | .... | Helvetia, ..... | Clearfield,..... | Found dead on the dilly track; was evidently killed by trip cars. |
| 10, | Peter Fearman, ..... | Miner, ..... | .... | .... | .... | Berwind Shaft, .. | Clearfield, ..... | Severely burned by an accidental explosion of blasting powder; died in Adrian Hospital on the 19th of same month. |
| May 26, | Joseph Sultelsy, ..... | Machine man, ..... | 40 | M. | 1 | Walston, ..... | Jefferson, ..... | Killed by fall of roof slate. |
| July 20, | John Miller, ..... | Machine helper, ... | 33 | M. | 4 | Eleanora No. 2, . | Jefferson, ..... | Killed by fall of coal. |
| Aug. 14, | Peter Pello, ..... | Miner, ..... | 17 | .... | .... | Kurtz & Rinn, . | Jefferson, ..... | Killed by fall of rock. |
| Sept. 29, | Robert Jeffrey, ..... | Miner, ..... | 41 | M. | 6 | Eleanora No. 2, . | Jefferson, ..... | Killed by fall of coal. |
| Oct. 8, | Joseph Waslaskie, ..... | Miner, ..... | 53 | S. | .... | Eleanora, ..... | Jefferson, ..... | Killed by fall of coal. |
| Dec. 23, | George Harmon, ..... | Door tender,..... | 14 | .... | .... | Bear Run, ..... | Tioga, ..... | Leg crushed by falling from and being run over by an electric motor in the mine; died next morning at the hospital. |

TABLE No. 5—List of Non-Fatal Accidents that occurred in and about the Mines of the Fourth Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Jan. 30, | William Larkey, | Miner, | 40 | M. | Rochester, | Clearfield, | Five ribs broken by fall of coal. |
| Feb. 25, | Archie Donaldson, | Driver, | 17 | .... | Dagus Mines, | Elk, | Leg broken by being caught between car and rib. |
| Mar. 10, | Hugh Reynolds, | Fire boss, | 48 | M. | Berwind Shaft, | Clearfield, | |
| 10, | John Graham, | Driver, | 22 | S. | Berwind Shaft, | Clearfield, | Severely burned by accidental explosion of blasting powder. |
| 10, | Gomer Hopkins, | Miner, | 49 | M. | Berwind Shaft, | Clearfield, | |
| 26, | John McDonald, | Driver, | 22 | M. | Mead Run, | Elk, | Foot bruised by being caught between car and rail. |
| April 28, | William Kohler, | Miner, | 29 | M. | Arnot, | Tioga, | Head slightly bruised by a fall of top coal. |
| May 14, | Samuel Pell, | Miner, | 70 | M. | Antrim, | Tioga, | Back and leg severely injured by being caught between loaded cars and the timbers on the dilly road. |
| 26, | William Johns, | Driver, | 37 | M. | Mead Run, | Elk, | Lost first finger of right hand by being caught between tail chain and car while hitching his mule on. |
| June 4, | Thos. Henderson, | Motor man, | 35 | M. | Bear Run, | Tioga, | Collar bone broken by being caught between the roof and the motor. |
| 28, | John Ryan, | Miner, | 43 | M. | Arnot, | Tioga, | Collar bone broken by a fall of coal. |
| July 16, | Dennis Magee, | Miner, | 40 | S. | Berwind Shaft, | Clearfield, | Back injured by a fall of roof. |
| 21, | William Parker, | Miner, | 45 | M. | Bear Run, | Tioga, | Back and leg bruised by a fall of roof coal. |
| 24, | William Harvey, | Driver, | 19 | S. | Berwind Shaft, | Clearfield, | Back and leg injured by falling in front of his trip while the cars were in motion. |
| 26, | James McKillop, | Miner, | 41 | M. | Clarion No. 4, | Jefferson, | Back bruised by a fall of coal. |
| Aug. 21, | John Barney, | Miner, | 33 | M. | Eleanora, | Jefferson, | Thumb and finger of left hand blown off; while he was preparing a dynamite shot he pressed the cap too hard, when it exploded in his hand. |
| 27, | Thos. Davis, | Driver, | 22 | S. | Eleanora, | Jefferson, | Leg injured by a mine car. |
| 31, | William Hockins, | Miner, | 38 | M. | Berwind Shaft, | Clearfield, | Leg broken by a fall of coal. |
| Sept. 11, | James Driscoll, | Miner, | 50 | M. | Morris Run, | Tioga, | Collar bone broken by a fall of coal |
| 15, | Richard Esaias, | Miner, | 41 | M. | Morris Run, | Tioga, | Shoulder and back injured by a fall of slate. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Oct. | 4, | James Heatley, | Carpenter, | 45 | M. | Antrim, | Tioga, | Right hand badly mashed by a jack screw slipping, throwing the whole weight of car on his hand. |
| | 21, | Mariana Farene, | Miner, | 35 | M. | Adrian, | Jefferson, | Leg fractured by a fall of slate. |
| | 25, | Mick Larcoski, | Road cleaner, | 47 | M. | Arnot, | Tioga, | He got on a loaded trip which was on the side track to ride out when the cars came together, he slipped off and fell on the side next the rib and had one or more ribs broken. |
| | 26, | William Watkins, | Miner, | 32 | S. | Bear Run, | Tioga, | Was injured while putting a large piece of coal on car, when the piece broke and fell on his foot. |
| | 29, | Samuel Heron, | Miner, | 63 | M. | Arnot, | Tioga, | Leg broken by a fall of slate. |
| Nov. | 10, | Frank Sekala, | Machine runner, | 35 | M. | Bear Run, | Tioga, | Bad wound on right leg; also bruised on shoulder and hip. It appears that his clothing caught on the screw of the drill, tearing the flesh and clothing before the electric current could be shut off. |
| | 10, | Richard Grant, | Miner, | 26 | M. | Bear Run, | Tioga, | Badly squeezed about the thighs by a fall of slate. |
| | 11, | Grand Linderman, | Rope rider, | 21 | M. | Eleanora, | Jefferson, | Squeezed between wagon and roof; his head was also badly bruised. |
| | 24, | Louis Carlson, | Miners' boy, | 15 | .... | Antrim, | Tioga, | Index finger of right hand cut off by mining machine falling on it. |
| | 25, | Ignatz Zelg, | Miner, | 27 | M. | Adrian, | Jefferson, | Leg and ribs injured by a fall of roof. |
| | 28, | Stan Rythman, | Miner, | 27 | M. | Morris Run, | Tioga, | Leg and arm bruised by a fall of coal. |

# Fifth Bituminous District.

(FAYETTE AND SOMERSET COUNTIES.)

Uniontown, Pa., February 8, 1896.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I herewith submit my annual report as Inspector of mines of the Fifth bituminous district for the year ending December 31, 1897, in compliance with section 2, article X, of the act of Assembly approved May 15, 1893.

There has been a considerable improvement in the coal and coke trade during the year. The production of coal and coke over that of the year 1896, is 1,522,135 and 863,668 tons, respectively. There were also 1,126 more persons employed than in the preceding year.

The number of accidents have increased this year as compared with last, both fatal and non-fatal. This is not due by any means to the lack of care upon the part of the officials of the mines, for I am satisfied that the mines in this district are in a better and safer condition and are more attentively looked after by the officers in charge than at any former period. The increase of accidents is due to the fact that the workmen employed have been more careless, indeed, to use a stronger term, they have been more reckless, and have exposed themselves unnecessarily to danger. The increase in the number of non-fatal accidents is because the mine foremen have reported all trivial accidents that have occurred, a great number of which ought not to have been reported, as the law contemplates that only serious or fatal accidents should be reported to the mine Inspector.

There seems to be no hope of decreasing the number of fatalities in mines until the persons employed in them will realize the important fact that unless they themselves take ordinary precautions to insure safety while at work, no degree of vigilance on the part of the mine officials, nor mining legislation, will prevent accidents. By reading over the description of the fatal accidents in another part of this report, it will be observed that seventeen of the twenty-five are due to causes that were under the control of the deceased persons themselves, and were preventable if even ordinary precautions had been exercised. But when, instead of care being taken to prevent

them, the parties carelessly, recklessly and even criminally, and also against the warnings and entreaties of other persons, will, deliberately place themselves in positions of danger and virtually invite death, is it any wonder that accidents occur. When over 200 per cent. of the accidents occur as the result of contributory negligence, it seems to be a hopeless task to propose any remedy. The other eight fatal accidents were purely unavoidable.

I send with this report the usual statistical tables.

All of which is respectfully submitted.

CHAS. CONNOR,
Mine Inspector, Fifth Bituminous District.

Summary of Statistics.

| | 1896. | 1897. |
|---|---|---|
| Number of mines in district, | 66 | 66 |
| Number of mines operated during the year, | 63 | 63 |
| Number of mines idle during the year, | 3 | 3 |
| Number of mines opened during the year, | 1 | 2 |
| Number of mines abandoned during the year, | 1 | 4 |
| Number of person employed inside the mines, | 4,809 | 5,688 |
| Number of persons employed outside the mines, | 2,715 | 2,962 |
| Total number of persons employed, | 7,524 | 8,650 |
| Number of tons (2,000 pounds) of coal produced during year, | 4,979,410 | 6,501,545 |
| Number of tons (2,000 pounds) of coal shipped during year, | 1,075,620 | 1,497,780 |
| Number of tons (2,000 pounds) of coke produced during year, | 2,629,541 | 3,493,209 |
| Number of tons of coal produced for each fatal accident, | 276,634 | 260,062 |
| Number of tons of coal produced for each non-fatal accident, | 103,655 | 91,853 |
| Number of persons employed for each fatal accident, | 418 | 346 |
| Number of persons employed for each non-fatal accident, | 157 | 122 |
| Number of pounds powder reported as used in mines, | 212,900 | 209,275 |
| Number of tons of coal produced for each pound of powder used, | 23.4 | 22.4 |
| Number of pounds of dynamite reported as used in mines, | ..... | 11,434 |
| Number of tons of coal produced for each pound of dynamite used, | ..... | 568.6 |
| Number of tons of coal produced for each person employed in mines, | 1,035.44 | 1,125.45 |
| Number of persons digging coal in mines, | 3,859 | 5,552 |
| Number of tons of coal produced for each person digging coal, | 1,290.34 | 1,171.02 |
| Number of days worked by all the mines during the year, | 13,572 | 15,013 |
| Average number of days worked by all the mines in operation during the year, | 215.5 | 238.3 |
| Average number of tons of coal produced per day for each person employed in the mines, | 4.8048 | 4.7228 |
| Average number of tons of coal produced per day for each person digging coal, | 5.987 | 4.914 |
| Number of horses and mules in use in and about the mines, | 737 | 767 |
| Number of coke ovens in district, | 8,318 | 8,390 |
| Number of coke ovens built during the year, | 220 | 72 |
| Number of mine locomotives in use, | 11 | 11 |
| Number of kegs of powder reported as used in mines, | 8,516 | 12,611 |
| Number of steam boilers in use, | 203 | 212 |
| Number of fatal accidents during the year, | 18 | 25 |
| Number of non-fatal accidents during the year, | 48 | 71 |
| Number of widows by fatalities, | 11 | 23 |
| Number of orphans by fatalities, | 18 | 63 |

Classification of Accidents.

| | 1896. | | 1897. | |
|---|---|---|---|---|
| | Fatal. | Non-fatal. | Fatal. | Non-fatal. |
| By falls of roof or slate, | 4 | 10 | 15 | 25 |
| By falls of coal, | 5 | 11 | 2 | 6 |
| By mine wagons, | 6 | 20 | 3 | 25 |
| By larries on coke ovens, | ..... | 1 | ..... | 1 |
| By explosion of gas, | ..... | 3 | 2 | 8 |
| By machinery and ropes, | ..... | ..... | 1 | 4 |
| By premature explosions of powder and dynamite in blasting, | ..... | ..... | 2 | ..... |
| Miscellaneous, | 3 | 3 | ..... | 2 |
| | 18 | 48 | 25 | 71 |

## Description of Mines.

Bessie.—This mine is in good condition, and is being well looked after. Considerable developments have been made during the year. Two new overcasts were built, which carry the ventilation well up to and around the working places. Mining boss and superintendent, George Whyel.

Berlin.—This mine has not employed a sufficient number of persons to bring it under the provisions of the law at any period during the year.

Casselman.—The air current in this mine is not vigorous enough to properly ventilate the workings. Ventilation is produced by the radiation of heat from steam pipes, which enter the slope to supply steam to a hoisting engine underground, and also to the mine pumps. The motive column produced by this heat is not large enough to give sufficient power to overcome the resistance of the mine, hence, the air current is feeble and sluggish, and the powder smoke hangs in clouds in the working places. I have repeatedly called the attention of the mine superintendent to this condition of affairs, and he has just as repeatedly promised to remedy them, but as yet these promises have not been fulfilled. The mine boss has done all in his power to conduct a current of air up to and around the workings, but it unable to accomplish it simply because there is not power enough in the ventilating force. What is needed is a fan placed over the inlet shaft. Mining boss, John Connor.

Cumberland.—This mine has been very much improved in its condition, being very rapidly developed into new territory, where a good system of mining has been adopted. The old work has all been exhausted and the new work is well ventilated on the double entry system, and the mine is well looked after as to healthfulness and safety. A new chute has been built during the year, which improves

the means of handling the coal, and gives good results. Mining boss and superintendent, Fred. Rowe.

Clarissa.—Is in its usual good condition in all respects. This mine has favorable natural conditions which the management take advantage of, consequently the mine is safe, healthful and well taken care of. Mining boss, J. C. Moore.

Chester.—The ventilation, drainage and general condition of this mine is good and leaves nothing to be desired. The mine boss knows his duties and performs them, with the result that his mine is in excellent condition. Mining boss, Edward Mooney.

Crossland.—I have simply to repeat what was said in last year's report with reference to this mine, viz: "That it is in excellent condition in all respects and is well and carefully looked after." Mining boss, David Walters.

Cheat Haven.—The condition of this mine is, upon the whole, good. It has been worked intermittently during the year, having spurts when forty or fifty men would be employed, then again not employing more than nine or ten men at times. The ventilation, with the exception of the inside heading on the left on the main entry, is good. Drainage is fair. Mining boss, Thomas Louden.

Edna.—Has employed only two persons during the entire year, who dig coal for domestic purposes.

Elm Grove.—This mine has been well developed during the year, the headings having been driven along very rapidly towards the boundary lines, with a view to recover the coal seam on the retreating method of working. The ventilation has been improved by adding another split to the air current. Several new overcasts have been made and the general condition of the mine has been improved. Mining boss, J. F. Anderson.

Elenora. — This mine is not under the provisions of the law at present, less than ten persons being employed. The ventilation is feeble, the power producing it not being strong enough. Part of the year, when a larger number of men were employed, a mining boss was in charge, but since the number of persons has been reduced, the services of that official has been dispensed with.

Fairchance.—This mine has been idle all the year.

Ferguson.—This mine had been idle for some time at the beginning of the year, but when the Hill Farm mine was closed down on account of the fire, operations were commenced in Ferguson, which is owned by the same company. The sudden stoppage of the Hill Farm mine and the imperative demand for coal to make coke to supply fuel for the furnaces of the company, made it necessary to operate the Ferguson mine night and day, owing to the lack of working places. The headings have been pushed and the work developed as rapidly as possible with a view of increasing the number

of working places in the mine, to enable operations to be carried on in the day time on single turn. The stoppage of the Hill Farm also made it incumbent upon the Ferguson mine to take care of the water which had formerly been pumped from Hill Farm. This necessitated the drillling of new bore holes and the removing of the pumps from one mine to the other, which was done under great difficulties. As the H. C. Frick Coke Company owned the surface overlying the Ferguson coal, objection was raised to the drilling of these bore holes, and said company applied to court for an injunction to restrain the Dunbar Furnace Company from drilling such holes. After considerable delay the court refused the injunction and permitted the drilling of the said holes upon the conditions that no mine or sulphur water should be delivered through the holes upon the lands of the H. C. Frick Coke Company. In the meantime, a line of water pipe was laid in the Ferguson slope, about 4,000 feet in length, through which the water will be pumped, pending the settlement of the injuunction proceedings, which is still being used for the purpose, until the arrangement for delivering it through the bore holes are completed. The exhaust steam from the mine pumps proved a very difficult problem to deal with. It was conveyed into an old room filled with water, as the only available means of disposing of it until the bore hole was drilled for its escape to the surface. Recent developments have disclosed that this was a very dangerous and expensive alternative, as the steam heated up the strata and decomposed the chemical constituents in it and the coal seam, and also the water to such an extent that spontaneous combustion took place, which resulted in setting the mine on fire at that particular place, which, at the present writing, is not yet extinguished. But as the fire was not discovered until 1898, I will not give a detailed report of the same until that year, as it properly belongs to that period. Suffice it to say that in this particular instance, it has been demonstrated beyond question that a mine fire can be and is caused by the dangerous practice of exhausting steam into mine water highly impregnated with sulphur and pyrites of iron. Mine boss and superintendent, John W. Greaves.

Fairview.—The workings of this mine are now all confined to removing the pillars. These are rapidly being removed and the mine is fast becoming exhausted. The healthfulness of the mine is not impaired by the taking out of the pillars, as the numerous falls to the surface give an abundance of air at the working places. Mining boss, John Rees.

Grindstone.—This mine did not work for some time at the beginning of the year, having been idle for over a year before. When visited, it was in good condition, and was being well looked after; the ventilation, drainage and general conditions were excellent.

Great Bluff.—This mine is now worked out, and abandoned.

Grassy Run.—This mine has favorable natural conditions, and would be easy to keep in good order, if ordinary care were exercised, but more dependence seems to be placed on natural laws than mining science and intelligent experience for the running of the mine. Everything seems to be running without intelligent direction and the natural results follow, viz: The mine is not properly ventilated and the men are working in an atmosphere of smoke, almost thick enough to be cut with a knife. A furnace is built, which, on account of its location and the fact that it is not very often fired up, is practically of no service. On my last visit I could not get a measurement of air in any part of the mine. The drainage is good, but nature, rather than management, is responsible, for as the workings are all going to the rise, the water naturally runs away from the working places and out of the mine. Mining boss and Superintendent, John Meagher.

Hocking.—This mine is, upon the whole, in pretty fair condition. A few of the working places were wet, and the air not quite as vigorous as it should have been, but, upon the whole, there was not much room for complaint. There is an evident desire to have things right, and efforts are being made to have and keep them so. Mining boss, R. A. Winters.

Hamilton.—This mine was formerly known as "Morgan," but its name was changed to "Hamilton" on the reorganization of the company during the year. It is in fairly good condition, both as to ventilation and drainage. The present management shows a disposition to get it into and keep it in better condition than formerly. Mining boss and superintendent, Jos. L. Dixon.

Hill Farm.—This mine is now closed up and abandoned on account of a fire which broke out on the slope, which rendered its closing up imperative, not only for the safety of the persons employed therein and in adjoining mines, but also to preserve from destruction the coal yet unworked remaining in the property.

The fire first showed itself on the slope at what is known as No. 12 flat, on the right side of the slope. Let me say here, by way of explanation, that this was not the only fire in the mine; there was fire on both sides of the slope further out towards its mouth, as the result of the accident which occurred in the mine on June 16, 1890. This fire, however, had been kept under control by means of stoppings and water pipes conducted through them, and had no connection with the present fire. When the new fire was discovered at No. 12 flat, I was notified, and at once proceeded to the mine to make an investigation as to its extent and the possibilities of preventing it from spreading. Upon examination, I found that the fire had already

spread over a larger area than was at first supposed, extending nearly to No. 14 flat, over 300 feet below, and to No. 8 flat, about 600 feet above No. 12 flat. This fire, however, was located in the gob behind the main slope pillar, which was over 100 feet thick. Through this pillar were seven openings to the slope. The proper thing to do was to close up these seven places with air tight stoppings so as to prevent the fire from reaching the slope. Orders were given to do this with all possible dispatch, but, unfortunately, the persons in charge of the mine were not equal to the emergency and allowed so much valuable time to be wasted by their trifling methods before operations were commenced, that the fire caught on some timbers at the mouth of No. 8 flat and the slope caught fire and burned like a furnace, assisted by the whole current of air in the mine. Through the carelessness of the officials in failing to provide a water line, which had been ordered, there was no water to fight the fire at this point, consequently, it was allowed to burn unchecked. This was about two weeks after the fire was first discovered, during which time, if prompt measures had been adopted, all the openings could have been closed up. I was called up during the night by telephone and informed of the new developments of the fire. I gave instructions to close up the slope and manway inside the mine, as near to the fire as possible, to cut off the supply of air. I telegraphed Inspectors Callaghan, Loutitt and Ross to come at once to the Hill Farm. When I reached the mine early the next morning, I found that no effort had been made to either fight the fire or cut off the air from it; also, that the fire had made such rapid progress that it was simply impossible to control or even check it. When the three other Inspectors arrived, a thorough investigation was at once made of all existing conditions in connection with the fire, and , after consultations with the management, it was the concensus of opinion that the fire had got such a start on the slope that it would be impossible to fight it with any hope of success. It was, therefore, decided to close up the slope and the manway inside the mine and abandon it. In order to accomplish this quickly, temporary wooden stoppings were put up and daubed with cement to make them air tight. While this was being done, the material for permanent brick stoppings was beings conveyed into the mine through the Ferguson mine. When sufficient material had been accumulated, work on the brick stoppings was commenced. In the meantime, a line of pipe was being laid from the mine pump so as to allow the exhaust steam to escape through these stoppings up the slope, also a water line to secure water from the discharge pipe at bottom of bore hole, to fight the fire back in the cut throughs in the slope, when work would be commenced to build permanent stoppings in them to replace the temporary wooden ones. All of this work demanded prompt action, which, in order to secure, it was thought best to engage a com-

petent person to take charge of the work, which was done. The mine officials, however, not liking to be thus superseded, and deeming it a slight on their competency, resorted to every conceivable means of obstructing and hindering the progress of the work. However, in spite of these and other difficulties, a line of permanent brick stoppings was eventually erected in every opening on the right side of the slope, down to the solid coal, thus cutting off completely any air from reaching the fire. The mouth of slope and manway on the outside were also hermetically sealed. In the adjoining Mahoning mine, which was connected with Hill Farm in numerous places, a line of stoppings was also constructed by the owners of that mine, along the entire length of their manway, for the purpose of preventing any leakage of air through the gob to support the fire in the Hill Farm mine. Thus, the fire was completely surrrounded by air-tight walls and solid coal. By this means it is hoped to keep it within circumscribed limits.

The coal yet unworked in Hill Farm mine can all be recovered through the Ferguson mine, which adjoins it and belongs to the same company.

The cause of the fire was the exhaust steam from the mine pump having been allowed to enter through one of the openings on the slope pillar into the gob workings, where the coal had been excavated, and as there was no means of escape for it from these old workings, it heated up the strata to such a temperature that chemical action took place, liberating the sulphur in the coal, the oxygen and hydrogen in the steam, and making the condition favorable for the forming of sulphurated hydrogen, which ignites at a low temperature. The superheated steam, in conjunction with the heat produced by the chemical action of the decomposing gases, would raise the temperature sufficiently high to produce spontaneous combustion, and thus cause the gob to take fire.

This exhaust steam was delivered into the gob, my express orders having been to convey it up the slope into an abandoned bore hole by means of a line of pipe. To save the expense of this pipe, it was allowed to escape into the gob, with the result that the whole mine had to be abandoned.

I may say that before the stoppings were all built and the work of closing up the fire was completed, the company became disgusted with the obstructive tactics of the mine officials and asked for their resignation and appointed the person who was in charge of the fire to be superintendent of mines.

Hurst.—This mine is now in good condition, both as regards ventilation, drainage and otherwise. On the 26th of January, an explosion of fire-damp took place in the mine, by which two men were killed and seven others were seriously burned and otherwise

injured. The explosion of fire-damp in this mine was in the nature of a surprise, as there had never been any gas encountered in the mine previously, nor has there been any found since. It would seem that there was a local pocket of it which was forced out by a fall, in the working place of the deceased persons, as described more fully in the account of the accident as given in another part of this report. The coroner held an inquest, at which testimony was given by a number of witnesses bearing on the case. When, after the strictest investigation was made, the jury rendered the following verdict:

"That after hearing the testimony the jury find that Peter Hawser and Chas. McQuiston came to their death at the coal mine of Hurst & Co., in Franklin township, Fayette county, Pa., on the 26th day of January, 1897, from an explosion of gas or fire-damp, which had been previously unknown in said mine in a dangerous form, and that their death resulted from an unavoidable accident."

Inspector Henry Louttit, on hearing of the explosion, came to the mine to render assistance. He, in conjunction with myself, made an investigation of the mine after the accident, but found no trace of any explosive gas in any portion of it. At none of my previous visits had I ever at any time found gas.

The explosion was quite a violent one, as it knocked down doors, brattices and air crossings, threw cars off the track, knocked out posts, hurled the men along the heading for a considerable distance and burned and threw down a large mule which was on the heading at the time. Mining boss, John Harley.

Juniata.—The gravity plane in this mine has been extended 1,800 feet further up the hill, thereby shortening the mule haulage by that distance. The usual excellent condition of the mine is still maintained. There is nothing left undone to keep it in a healthful and safe condition. Mining boss, Peter Connor.

Kyle.—This mine is also in good condition. The headings are still being driven ahead of the requirements for rooms, the object being to get to the far end of the coal field as soon as possible, and work from the inner end back towards the pit mouth. Ventilation, drainage and general condition, good. Mining boss, I. W. Reckard.

Keystone.—This mine has been idle all the year, in fact, for several years. The outside improvements have been allowed to fall to decay. It is abandoned and will be so considered in future.

Leith.—The air current has been improved by the shortening of the distance which it has to travel. The headings have been pushed to the limits of the property, and the coal is being worked back towards the shaft. The mine is in good condition generally, and is well looked after. Mining boss, W. J. Callaghan.

Leisenring No. 1.—Considerable grading has been done on the

main butt heading and parallel to enable the mules to haul larger trips. A new rope haulage way has been cut diagonally across the workings to shorten the distance and to get rid of bends, as well as to secure a better grade. By this new road, a grade of one per cent. has been secured. The new haulage way will go right into the body of coal and make the distance short which the mules will have to haul to the side track. The working will then be concentrated instead of being scattered all over the mine, as at present. At the shaft bottom substantial improvements have been made to secure the roof over the side tracks. Stone walls have been built on each side of the roads. Resting on the tops of these walls are steel I beams, four feet apart, which extend across both tracks. On top of these beams, planks three inches thick are placed close together as lagging. The shaft bottom has been secured in this manner for a distance of 160 feet on the west side. Mining boss, Joseph L. Miller.

Leisenring No. 2.—This mine is in good condition in all respects. The rope haulage engine for the dip side of the shaft having proved too small for the increased output of coal from the workings, a new one, which is much larger, is being installed. The engine house, which is being blasted out of the roof is being made. The engine will shortly be put in position. Several new overcasts have been built during the year, which has secured a better distribution of the air current. Mining boss, John W. Foster.

Leisenring No. 3.—This mine is now in good condition throughout is entire extent. The bore hole, which was drilled some time ago for the purpose of removing gas from the gob working has proved successful in every particular. The hole was drilled down through to the coal seam before the ribs were worked back to it, and while the ribs were being drawn back, it did not drain off any of the gas in the gob until the roof had fallen immediately under the bore hole, which proves that gas will not escape from the gob through solid strata, but that when the strata is opened up by falling, and a bore hole drilled over it, all the light gas will escape through it, and keep the gob falls clear of standing gas. Another bore hole has been drilled, in another section of the mine, from the surface, to drain off the gas when the ribs are being drawn out. The same results have occurred as in the former case, viz: No gas had been drained off from the gob where it exists, on account of the ribs not being drawn back far enough to be under the bore hole. This shows, first, that gas will not escape through solid strata into bore holes from gob falls; second, that gob falls can be kept free from standing gas by means of bore holes drilled from the surface immediately over them. Considerable improvement has been made at the shaft bottom on the south side; a brick arch has been built for a distance of 150 feet back from the shaft, which is thirteen inches thick, resting on stone

side walls two feet thick, and has a clear span of seventeen feet six inches. A new pump room, forty-nine feet in length at the shaft bottom has also been arched in a similar manner. Mining boss, Edward O'Toole.

Lynn.—The mine is in good condition in all respects and is well looked after. Mining boss and superintendent, James Harding.

Laughead.—This mine is fast being worked out, all the workings being confined to pillar work. The ventilation is not as vigorous as it formerly was, by reason of the removal of the fan and the substitution of a small furnace. In one of the entries black-damp was produced in such volumes that lamps were extinguished and the men were unable to get into their working place. I ordered those places stopped until sufficient air was forced into them to carry off the black-damp. This is one of the places where economy is practiced at the expense of the health of the workmen. Mining boss, Matthew Horn.

Lemont No. 1.—This mine has been greatly improved during the year. A new Capell fan has been erected, size, 12½ feet in diameter, 10 feet wide, driven by a Taylor-Beck engine, size 17x18 inches, direct connected. A new circular shaft, 12 feet diameter, has been sunk 110 feet deep for the purpose of ventilation, over which the fan has been erected. From the bottom of this shaft two airways connect with the workings of the mine, where the air is distributed in abundant volume around the working places. Shortly after the erection of the fan, a test was made of its capacity to force air into the mine, which for accuracy and completeness perhaps has never been exceeded, if indeed, ever equalled. Measurements were made simultaneously of the volume of air passing at various points in the mine; also, of the water gauge, the steam pressure at boilers and cylinder of engine, the number of revolutions of fan and indicator diagrams of horse power of engine, etc. While running at the greatest speed during the series of twelve tests, the following results were obtained:

Water gauge, in inches, 4.0.
Revolutions per minute of fan, 227.0.
Horse power of engine, 269.55.
Horse power in air, 246.24.
Volume in cubic feet, 390,650.
Useful effect of fan, 91.30 per cent.
Manometric efficiency, 57.24 per cent.
Mining boss, John A. Carrol.

Lemont No. 2.—This mine was in good condition in every respect. A section of the mine is ventilated by the new Capell fan located at No. 1 mine. This causes a greater volume to be distributed around the other sections of the mine in No. 2. There is no lack of ventilation, however, in any portion of the workings. A new tubular boiler,

14 feet long by 60 inches diameter, has been added to the boiler capacity at the air compressor plant. Mining boss, Elias Phillips.

Morrell.—The coal at the lower boundary of this mine is rapidly being exhausted. All the coal is being mined from pillars and is getting well back towards the bottom of the slope. Several squeezes have occurred while drawing out the ribs and considerable coal has been lost in consequence. Considerable trouble is experienced in working the coal in consequence of the squeeze breaking the roof. Numerous falls occur on the roadways and in the working places, which makes it dangerous to life and limb and expensive to operate safely. The ventilation is good in all parts of the mine except at the outer end of the slope, where an old flat is being reopened for the purpose of recovering some ribs which were left standing years ago. Here, considerable black-damp is mixed with the air current. It is in contemplation shortly to hole this place through to an old country mine, which will give a supply of fresh air and will remedy the present trouble. The drainage is defective in parts on account of the numerous falls closing up the drains. Mining boss, James S. Connor.

Mahoning-Atlas.—This mine is made up of the workings and slopes of what was formerly two separate mines, viz, Mahoning and Atlas. They are connected underground with hauling roads, and the same ventilating fan gives air to both, and the same pumping arrangement drains both mines and they belong to the same owners. They are now consolidated into one mine under the management of the same mine foreman. The general conditions are good, the mine being well ventilated, drained and looked after. Mining boss, Frank Rodgers.

Mt. Braddock.—The headings in this mine are still being pushed forward to develop the mine, but owing to the great demand for coal to charge the increased number of ovens which were built last year, the rooms are being worked out as fast as they can be won out of the solid coal by the developments of the headings, and the plan is to draw no ribs until the boundary is reached. It is a question, however, whether, by leaving all the ribs standing for so long a time before drawing them, a squeeze will not overrun the mine whenever rib drawing is commenced, and a large part of the coal never be recovered. Time will determine the result, and I am of the opinion that it is rather a risky experiment, and may prove a costly one. The ventilation, drainage and general conditions for the safety of the mine are good. Mining boss, John Bitz.

Mt. Hope.—This mine is in good condition in all respects. It has all the advantages of good natural ventilation and drainage and is well looked after. Mining boss, George Armstrong.

Nellie.—This mine is nearly worked out to the boundary lines. There is a large territory of solid coal, however, above water level as yet almost untouched, which will not be developed until all below water is nearly worked out. The condition as to healthfulness and safety is good. The mine is being well cared for and will not suffer for want of attention. Mining boss, David Young.

Nellie.—This mine is in fair condition and were it not for the fact that the natural conditions are exceedingly good and very little attention is required to get good results, it would not get so favorable a report, as scarcely anything is done to keep it in order. The mine foreman is one only in name. He is employed for some trifling sum to visit the working places of the miners, as required by law, just as a blind, and to technically cover the mine law, but he has no authority whatever. He digs coal all the time, just as any other miner does and visits around the working places between times. He simply acts as a stool pigeon with his certificates for the operator, who acts as superintedent and everything else, and does very little of anything. Mining boss, Archie Cochran.

Oliphant.—This mine is now in good condition generally. A large sump has been made on each side of the slope, with a capacity for holding about eight or ten days' accumulation of water at its maximum rate of accumulation. The headings are still being pushed forward towards the boundary lines, and considerably more room has been opened out than is required at present. Connection is made with the Wynn mine, which drains its water into this mine and is pumped by its pumps. The ventilation and drainage are good. Mine boss, James Small.

Oliver Nos. 1 and 2.—These mines are in their usual good condition and everything is being done to keep them so. A new "endless rope" system of haulage is being installed in No. 2 mine similar in principle to the one in No. 1 mine. A large brick stack has been built on the top of the exhaust shaft at No. 1. The mine is being carefully looked after, and the health and safety of the persons employed are being continually cared for and there is nothing left undone that foresight can prevent. Mining bosses Albert J. Williams and Charles M. Porter.

Paul.—A new compressor plant has been installed at this mine for the purpose of furnishing air to run the mine pumps. A large pump has also been put in place near a bore hole from the surface, through which water will be discharged from the mine. Also, a large sump has been made in which to collect the water from the different sections of the workings, most of which will drain into it. The balance will be pumped into it by small pumps, which are also run by compressed air. When finished this will be a model pumping plant. The mine is in good condition throughout and is in good hands and will be well taken care of. Mine boss, Robert Nelson.

Percy.—This mine is now working on pillars and ribs, all the solid coal having been worked out. It is in good, healthful condition. Mining boss, Everhart Shipley.

Pine Hill.—A small force of men is employed at this mine, not enought to bring it under the requirements of the law. Its condition is fairly good.

Ponfeigh.—This mine was formerly known as the "Buffalo," but a change of lessees changed the name. When the present operators commenced to run coal, their plant was burned. They thereupon decided to open up a slope and haul coal from the mine by that method rather than rebuild a derrick over the old shaft. This took some time, consequently, they were not enabled to ship a large quantity of coal during the year. A new hoisting engine has been put in at the slope opening, a new tipple built and a fan erected over the old shaft, also, a new pump at the bottom of it, so that they are in good condition to commence operations this year. The ventilation and drainage are excellent. Mining boss and superintendent, William McDowell.

Redstone.—The air current in this mine has been reversed and better results obtained. The air now reaches the working places first, and the men get a better quality as well as greater quantity of it than before the change was made. Formerly, the air came through the rib workings and the gob and was polluted by noxious gases before it reached the men. These gases are now carried out of the mine by the air current, after having first supplied the wants of the men. The volume of air has been considerably increased by the change, as natural forces now help the ventilating apparatus instead of working against it as formerly. The mouth of the lower slope has been arched for a distance of 90 feet, with a 13-inch thickness of brick, resting on two feet thick stone side walls 8 feet 8 inches high. The mine is in excellent condition and is being well looked after. Mining boss, Elijah Parker.

Stewart.—This mine is as always, in excellent condition. Everything is done that will tend to the welfare and safety of the persons employed. The requirements of law are not only complied with, but even exceeded to secure that object. A new bore hole has been drilled farther down the slope for the purpose of pumping water through it to the surface. At this place a large sump has been made to collect the water for the pump which will be placed there. Mining boss, Isaac G. Roby.

Snider.—This mine has never at any time employed more than nine persons, therefore, I did not visit it during the year, as it did not come under the provisions of law. Three years ago I insisted that a furnace or some other artificial means of producing ventilation should be put in the mine to comply with the law. I was informed then that

they would reduce the number of men below the requirements of law and would never employ more than nine persons and thus keep outside the law. This has been done ever since, and, consequently, I am powerless to act. Mining boss, Robert Wilson.

Smock.—A tail rope haulage has been installed in this mine during the year, which gives good results. The ventilation is somewhat weak at the extreme points of the workings. I could not get a sufficient volume to move the anemometer. This will have to be remedied, as explosive gas is generated in the working places, one person having been slightly burned during the year. The ventilating fan is not large enough to produce force sufficient to put the volume of air in circulation required for the necessities of the mine. The other conditions are generally good. Mining boss, Ben Holiday.

Smithfield.—This is a new mine which has been opened out during the year. It is a small operation and employes only 9 miners inside and six persons outside, at the coke ovens, of which there are twelve. The mine is opened out on a small knob of about twenty-five or thirty acres of coal. It is self draining and self ventilating, and holes can be made at any place as the covering is light. Mining boss, Joe Harlicheck.

Statler.—The ventilation is fairly good, but it is fearfully polluted by powder smoke from the incessant blasting of the coal during working hours. Mining of the coal is hardly ever done, it being shot out of the solid. It would require a volume of air like a hurricane to keep a pure atmosphere in this mine. The drainage is good, the working places all going to the rise. Mining boss, Orlando Flesher.

Shaws.—This mine is in excellent condition. The ventilation is ample and well distributed around the workings. The drainage is also good, except in a few rooms which are in a swamp, where the water has to be bailed out so that the coal can be worked. Here the shooting of coal is regulated in such a manner that the atmosphere is always kept in a healthful condition, blasting is done only at the noon hour and after 4 P. M. Mining boss, James Phillips.

Standard.—This is a small mine employing only twelve men inside and two outside. The seam is low, about three feet eight inches, and lies in a series of waves or swamps, consequently the mine is not well drained at all points. The ventilation is mostly by natural means, although there is a furnace and an air shaft, which are seldom used. The air is, upon the whole, good, as there are very favorable natural conditions to produce a current; then, care is taken to blast the coal only at the time when work is suspended, so that the atmosphere is kept pretty clear and healthful. Mining boss, C. J. Baker.

Tub Mill Run.—During the year this mine employed a sufficient number of persons to bring it under the provisions of the law again.

This mine, like nearly all the others in the Salisbury region, has never been worked on any system except a "go-as-you-please" or "go-as-you-can" system, consequently neither the mine nor the ventilation is in a satisfactory condition. There are no means other than natural ones to ventilate the mine. Although at each of my visits there was a good current of air in circulation, this cannot be depended upon. I notified the operators that some artificial means would have to be provided to comply with law. The drainage was good, except in a few low places. The most of the work being done in the mine at present is recovering rib coal. By the imperfect methods of mining the coal in the past, a great number of ribs will never be recovered. This is a great pity, for the conditions are very favorable for recovering nearly all of the coal seam if proper methods had been adopted to mine it. Mining boss, William K. Murray.

Thomas.—This small mine is in good condition and is well looked after in every respect. Mining boss, Benjamin Thomas.

Trotter.—This mine is in its usual good condition. An increase in the volume of air delivered into the mine has been made by increasing the area of the airways at the bottom of the inlet shaft. These had been allowed to close up gradually by small falls. They have been cleaned up, however, and some of the roof and sides blasted down. This was money well spent, as an increase of the volume of air by nearly one-third was the result. The headings are still being driven ahead of the requirements of the demand for pit room. Mining boss, James Hart.

Uniondale.—The workings in this mine are confined to the drawing of ribs, all the solid coal having been worked over. The ventilation and drainage are good, as are the other general conditions. Mining boss, James L. Allen.

Wynn.—This mine is now connected with the Oliphant, being ventilated by the same system and owned and operated by the same company and is under the control of the same mine foreman. It is in good condition in all respects. Mining boss, James Small.

Wheeler.—This mine is now confined to pillar working and is being worked back towards the slope very rapidly. It is in good condition generally, both as to ventilation and drainage. Mining boss, John Yocum.

Washington Nos. 1 and 2.—These mines are connected in such a manner by the same system of ventilation, drainage and haulage, and owned by the same company, that they may be considered together as one mine, although there is a mine foreman for each. The ventilation, drainage and general condition are excellent in every respect, leaving nothing to be desired in the way of improvement. A large haulage engine has been placed inside No. 1 mine to haul the coal from the dip workings. The steam is conveyed to the

engines by a steam pipe through a 14-inch bore hole from the surface. The exhaust steam is also conveyed up through the same bore hole and escapes into the atmosphere outside. This is accomplished by the casing of the bore hole being so much larger than the steam pipe within it, viz., twelve inches inside diameter of casing; outside diameter of steam pipe, six inches, thus allowing three-fourths of the area of the casing for the exhaust steam. This keeps the engine room extremely cool. This mine has produced the largest quantity of coal of any mine in the district, 714,988 tons. The mine having worked 311 days, gives an average daily output of 2,299 tons, thereby doubling the production over that of last year, during which there was an average output of 1,125 tons per day. This is one of the best equipped mines in western Pennsylvania for handling large quantities of coal, and is splendidly kept up by the officers of the mine. Mining boss for No. 1, George Santimeyer; for No. 2, John Bell.

Walker.—This is perhaps the worst ventilated mine in the whole district. No effort has been made to provide means for conducting the air current around the mines since the present lessee commenced operations. Previous to that time, the ventilation and general conditions of the mine were good. The natural advantages are very favorable, and if even an attempt to help nature was made, the mine could be kept in a comparatively healthful condition, but absolutely nothing had been done to conduct the air into the workings. A furnace had been built by the former operator, but even this was not used. As blasting is going on at all hours, the atmosphere of the working places is thick with smoke, which never moves, as there is no current of air in circulation. Frequently the men have to quit work and leave the mine. How they work in it at all is wonderful. The same person operates this mine who operates the Nellie mine, described in a former part of this report. Here, the same methods are adopted with reference to the employing a mine boss, viz: A person who holds a certificate of service under the law is employed as a cat's paw to the lessee. This individual digs coal just as the other miners do, but for a paltry sum he is engaged to visit the working places of the other miners, as a blind to comply with law, but which is virtually an evasion of it, and this is the extent of his boss-ship. The result of all this is that the mine is neglected and the persons employed therein are the sufferers. At my last visit, I found the air in such an awful condition that I at once notified the lessee that unless he would put air into the working places of the miners within three days, I would take steps to shut down the mine. This had the desired effect, and a force of men was put to work erecting brattices and doors; also, to repair the furnace and fire it up. Within the specified time the ventilation was satisfactory. Mining boss, Thomas Conlehan.

Yoder—This mine has been shut down for an indefinite period. Its condition is fairly good. It did not employ a sufficient number of persons to come under the provisions of the law at all times. There was no mining boss employed on that account.

Youngstown—This mine is in good condition. The workings have been extensively developed during the year. The ventilation, drainage and general conditions are good. The mine is well taken care of and will not suffer for lack of attention. During the year a bore hole was put down for the purpose of pumping the mine water through to the surfacee, the present one having been inadequate. The new hole will give ample room for discharging all the water that the pumps are capable of pumping. Mining Boss, James Exton.

## Description of Fatal Accidents.

Charles McQuiston and Peter Hawser aged 35 and 23 years respectively were killed by an explosion of gas in the Hurst mine on January 26.

March 6.—Robert Hixenbaugh, hoisting engineer, at the Mt. Braddock slope, was instantly killed by the bursting of a steam separator in the engine room. Coroner P. F. Smith impaneled a jury and held an inquest; jury rendered the following verdict:

"That Robert Hixenbaugh came to his death from concussion of the brain caused by the bursting of the steam separator at the W. J. Rainey's Coke Works at Mt. Braddock, Fayette county, Pennsylvania, on the 6th day of March, 1897, while at his place of labor. The jury believing the separator to have been too weak to stand the required pressure."

John Gonda killed by having his skull fractured in Washington No. 2 Mine, belonging to the Washington Coal Coke Co.

The deceased on the morning of April 8th, about five o'clock had fired a blast in his working place and left said working place and was entering the working place next to his own. The man who was working in this next place was also preparing to fire a blast, and shouted to Gonda to go back as he was going to fire a shot. Gonda, instead of retreating, as he should have done, stood against the rib, at the entrance to this room. When the blast went off, a piece of flying coal from the shot struck him on the head, killing him instantly.

Harrison D. Flickinger was killed by a fall of coal in the Walker mine, belonging to the Merchant Coal Company, of Baltimore, Md.

Frank Hoadtz, aged 38, died from injuries received while blasting "horse back," in the Mahoning-Atlas mine, owned and operated by the Cambria Iron Company.

Frank Brunclick, aged 39, was killed in Washington mine by a fall of slate and coal.

John Zomer, aged 31 years, a driver in the Cumberland mine, owned and operated by the Cumberland and Summit Coal Company, located near Myersdale, Somerset county, was fataly injured in the above mine, his head having been crushed between cars.

Dennis Reynolds, aged 40 years, was killed by a fall of slate in Redstone mine, operated by the H. C. Frick Coke Company.

Andy Lukatos, aged 45, was crushed and killed by a trip of mine cars in Washington mine. Lukatos was a miner and was traveling on the hauling road, where he had no business to be, as there was a good traveling road provided.

Anthony Linney, aged 34, was buried beneath a fall of roof coal and slate, and died before he could be gotten out.

Joseph Kalina, 36 years of age, was working in Morrell mine, operated by the Cambria Iron Company. While engaged digging coal, the slate over it became loose, having an open end, and fell on him. He was killed outright.

John Rahaly, aged 39 years. This man met his death by the grossest recklessness. A man in the next rib to the deceased was drawing out posts preparatory to making a fall. The deceased, who had come into his place to watch him draw the posts, said to him: "You 'fraid to draw posts; you no furstay draw post; me show you." He then took the axe from the other man and commenced to knock out the posts, never stopping to listen whether the roof was breaking or not. He was knocking out the second post when the whole mass of rock fell on him, killing him instantly.

John Cornish was killed while drawing posts out of a rib in Leisenring No. 2 mine, operated by the H. C. Frick Coke Company. He had got all the posts out except one, which he had left to steady the roof while drawing out the other posts. The roof did not fall as he expected, when he got the posts out; therefore, to make it fall, he went back to knock out the one remaining post, which, when it was knocked out, allowed the whole area behind his "break row" to fall, which instantly killed him.

Joe Havanich, 28 years of age, was drawing stumps in Trotter mine, owned by the H. C. Frick Coke Company. He and another person were working together on the butt heading stumps, which had considerable of a "squeeze" on them. The roof was bad, and cross timbers had to be used to keep it up. However, there was no lack of timber in, and it was secured as well as possible under existing conditions. While the two men were loading a wagon, the roof began to break, work and fall. They ran out past the wagon down the heading, the roof falling behind them, when, suddenly, with a great crash, the whole roof came down, the outer edge of the fall catching

them as they ran, burying Hanaich under it; the other man, who was a step or two ahead, having been cut and bruised and he narrowly escaped death.

George Washington, aged 28, and Harry Crawford, aged 37, both colored men, were killed in Leith mine, operated by H. C. Frick Coke Company, by a fall of roof.

Thos. B. Richardson was killed by a fall of roof while cutting away a stump, after he had drawn out his posts, in the Leisenring No. 3 mine, belonging to the H. C. Frick Coke Company.

John Burlock, age unknown, was instantly killed by a fall of slate in his working place in Leisenring No. 2 mine.

Pleasant Lynch, age not given, was instantly killed by a fall of slate in the Leisenring No. 2 mine, owned by the H. C. Frick Coke Company.

Edward Tensky, aged 28, while working in Trotter mine, operated by H. C. Frick Coke Company, had his wrist broken, the muscles of his back strained and was injured internally by a fall of slate. When taken home the doctor did not think anything serious would result, but he died on the 26th of November.

Henry Stophaka, age 28 years, was killed in Elenora mine, operated by the J. D. Boyd Coal Co. Stophaka was undermining a breast of coal, which had been shattered by a previous blast of gunpowder. He had put the sprag in under it while he was undermining, but while at work he struck the sprag with his pick and knocked it out, when the coal fell upon him, crushing and bruising him to such an extent that he lived only a few hours.

David J. Crosby was killed under a trip of mine cars on the slope of the Stewart Iron Company's mine.

Mike Ochlane, aged 44, was killed by a fall of roof coal and slate in the Mahoning-Atlas mine, belonging to the Cambria Iron Company.

John Stickle, aged 49 years, was killed by a fall of roof coal and slate in the Crossland mine, owned and operated by the Atlas Coke Company

TABLE No. 1.—Showing Location, etc., of Collieries in the Fifth Bituminous District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Bessie, | | Fayette, | George Whyel, | Perryopolis. |
| Berlin, | Jno. O. Stoner, | Somerset, | Jno. O. Stoner, | Berlin. |
| Casselman, | Casselman Coal Company, | Somerset, | Wm. G. Hocking, | Meyersdale. |
| Cumberland, | Cumberland Coal and Coke Co., | Somerset, | Fred. Rowe, | Meyersdale. |
| Clarissa, | James Cochran, Sons & Co., | Fayette, | P. G. Cochran, | Dawson. |
| Chester, | E. A. Humphries & Co., | Fayette, | R. J. Humphries, | Vances Mills. |
| Crossland, | Atlas Coke Company, | Fayette, | James Henderson, | Uniontown. |
| Cheat Haven, | Cheat Haven Coal Company, | Fayette, | W. H. Thomas, | Connellsville. |
| Connellsville No. 1, | Connellsville Coke Company, | Fayette, | Henry M. Wilson, | Cheat Haven. |
| Edna, | Connellsville and Ursina Coal and Coke Co., | Somerset, | E. H. Reid, | Scottdale. |
| Elm Grove, | W. J. Rainey, | Fayette, | T. J. Mitchell, | Vanderbilt. |
| Elenora, | J. D. Boyd Coal Company, | Fayette, | J. D. Boyd, | Uniontown. |
| Fairchance, | H. C. Frick Coke Company, | Fayette, | George B. Irvin, | Fairchance. |
| Ferguson, | Dunbar Furnace Company, | Fayette, | John W. Greaves, | Dunbar. |
| Fairview, | Fairview Coal Company, | Somerset, | Thomas Rees, | Meyersdale. |
| Grindstone, | Redstone Oil, Coal and Coke Company, | Fayette, | W. R. Wilson, | Grindstone. |
| Great Bluff, | E. A. Humphries, | Fayette, | A. E. Humphries, | Pennsville. |
| Grassy Run, | Grassy Run Coal Company, | Somerset, | John Meagher, | Elk Lick. |
| Hocking, | Chapman Hocking Coal Company, | Somerset, | John T. Hocking, | Meyersdale. |
| Hamilton, | Duncombe & Adams, | Somerset, | George H. Duncombe, | Meyersdale. |
| Hill Farm, | Dunbar Furnace Company, | Fayette, | John W. Greaves, | Dunbar. |
| Hurst, | Warner Coal Company, | Fayette, | Whitney Warner, | Smock. |
| Juniata, | Juniata Coke Company, | Fayette, | Adam Nicholson, | Juniataville. |
| Kyle, | H. C .Frick Coke Company, | Fayette, | George B. Irvin, | Fairchance. |
| Keystone, | Keystone Coal Company, | Somerset, | E. J. Weld, | Meyersdale. |
| Leith, | H. C. Frick Coke Company, | Fayette, | Harry Whyel, | Uniontown. |
| Leisenring No. 1, | H. C. Frick Coke Company, | Fayette, | Austin King, | Leisenring. |
| Leisenring No. 2, | H. C. Frick Coke Company, | Fayette, | Chas. J. Warnock, | West Leisenring. |
| Leisenring No. 3, | H. C. Frick Coke Company, | Fayette, | W. H. Hugus, | Leisenring. |
| Lynn, | Hanna Brothers, | Fayette, | James Harding, | Brownsville. |
| Laughead, | Martin Coke Company, | Fayette, | E. D. Humphries, | Fairchance. |
| Lemont No. 1, | McClure Coke Co., | Fayette, | E. A. Humphries, | Scottdale. |
| Lemont No. 2, | McClure Coke Co., | Fayette, | E. A. Humphries, | Scottdale. |
| Morrell, | Cambria Iron Company, | Fayette, | Martin Meagher, | Connellsville. |
| Mahoning—Atlas, | Cambria Iron Company, | Fayette, | Martin Meagher, | Connellsville. |
| Mt. Braddock, | W. J. Rainey, | Fayette, | J. M. Franklin, | Mt. Braddock. |
| Mt. Hope, | Isaac Taylor & Co., | Fayette, | Isaac Taylor, | Dunbar. |
| Nellie, | Brown & Cochran, | Fayette, | J. R. Loughrey, | Dawson. |
| Nellie, | E. Statler, | Somerset, | E. Statler, | Elk Lick. |
| Olyphant, | H. C. Frick Coke Company, | Fayette, | C. C. Gadd, | Olyphant Furnace. |
| Oliver No. 1, | Oliver & Snyder Steel Company, | Fayette, | Fred. C. Keighley, | Uniontown. |
| Oliver No. 2, | Oliver & Snyder Steel Company, | Fayette, | Fred. C. Keighley, | Uniontown. |
| Paul, | W. J. Rainey, | Fayette, | T. J. Mitchell, | Vanderbilt. |
| Percy, | Percy Mining Co., | Fayette, | Louis de Saulles, | Percy. |
| Pine Hill, | Walker & Easton, | Somerset, | George K. Walker, | Berlin. |
| Penfeigh, | Holt P. McDowell, | Somerset, | William McDowell, | Garrett. |

TABLE No. 1.—Continued.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Redstone, | H. C. Frick Coke Co., | Fayette, | Leonard Bullious, | Brownfield. |
| Stewart, | Stewart Iron Co., Limited, | Fayette, | E. M. Peters, | Uniontown. |
| Snider, | John Snider, | Fayette, | John Snider, | Uniontown. |
| Smock, | J. D. Boyd Coal Co., | Fayette, | W. H. Boyd, | Smock. |
| Smithfield, | | Fayette, | J. D. Boyd, | Uniontown. |
| Statler, | E. Statler, | Somerset, | E. Statler, | Elk Lick. |
| Shaws, | Cumberland and Elk Lick Coal Company, | Somerset, | A. Chamberlin, | Meyersdale. |
| Standard, | Brubaker & Kimmel, | Somerset, | J. C. Wetmiller, | Berlin. |
| Tub Mill Run, | Fairview Coal Co., | Somerset, | Thomas Rees, | Meyersdale. |
| Thomas, | Benj. Thomas & Son, | Somerset, | Benj. Thomas, | Meyersdale. |
| Trotter, | H. C. Frick Coke Company, | Fayette, | P. J. Toomay, | New Haven. |
| Uniondale, | Reid Bros., | Fayette, | R. B. Reid, | Dunbar. |
| Wynn, | H. C. Frick Coke Co., | Fayette, | C. C. Gadd, | Olyphant Furnace. |
| Wheeler, | Cambria Iron Company, | Fayette, | Martin Meagher, | Connellsville. |
| Washington No. 1, | Washington Coal and Coke Company, | Fayette, | John S. Newmeyer, | Dawson. |
| Washington No. 2, | Washington Coal and Coke Company, | Fayette, | John S. Newmeyer, | Dawson. |
| Washington No. 3, | Washington Coal and Coke Company, | Fayette, | John S. Newmeyer, | Dawson. |
| Walker, | Merchant Coal Company, | Somerset, | E. Statler, | Elk Lick. |
| Yoder, | Ringler & Hirsh, | Somerset, | C. P. Hirsh, | Coal Run. |
| Youngstown, | H. C. Frick Coke Co., | Fayette, | Chas. M. Shank, | Lemont Furnace. |

TABLE No. 2—Gives the total number of tons of coal mined in each Colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Fifth Bituminous District, for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam heat. | Sold to local trade and used by employes. | Railroad shipment in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bessie, | Fayette, | 86,800 | ..... | 1,100 | 4,200 | 81,500 | 205 | 93 | ..... | ..... | 750 | 225 | 1 | 4 | ..... | ..... |
| Berlin, | Somerset, | 4,759 | ..... | ..... | 1,093 | 3,666 | 211 | 9 | ..... | ..... | 26 | ..... | ..... | 2 | ..... | ..... |
| Casselman, | Somerset, | 28,000 | ..... | ..... | 500 | 27,500 | 350 | 37 | ..... | ..... | 200 | ..... | 2 | 4 | ..... | ..... |
| Cumberland, | Somerset, | 76,942 | ..... | ..... | 870 | 76,072 | 292 | 120 | 1 | ..... | 963 | ..... | ..... | 7 | ..... | 10 |
| Clarissa, | Fayette, | 67,235 | 48,726 | ..... | 1,975 | ..... | 296 | 91 | ..... | ..... | ..... | ..... | ..... | 7 | ..... | 108 |
| Chester, | Fayette, | 21,116 | 18,553 | 700 | 150 | ..... | 247 | 50 | ..... | ..... | 100 | 500 | 3 | 4 | ..... | 40 |
| Crossland, | Fayette, | 82,959 | 56,030 | 357 | 827 | ..... | 307 | 101 | 1 | 1 | ..... | ..... | 1 | 5 | ..... | 100 |
| Cheat Haven, | Fayette, | 22,797 | ..... | ..... | ..... | 22,797 | 175 | 43 | ..... | 2 | 100 | ..... | ..... | 5 | ..... | ..... |
| Connellsville No. 1, | Fayette, | 22,105 | 11,129 | ..... | 1,000 | 3,310 | 154 | 60 | ..... | ..... | 5 | ..... | 1 | 5 | ..... | 50 |
| Edna, | Somerset, | 1,536 | ..... | ..... | 843 | 693 | 205 | 2 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... |
| Elm Grove, | Fayette, | 130,000 | 90,000 | 1,000 | 200 | ..... | 300 | 158 | ..... | 3 | ..... | 100 | 3 | 8 | ..... | 218 |
| Elenora, | Fayette, | 31,524 | 1,760 | ..... | 40 | 29,724 | 292 | 20 | 1 | 2 | 228 | ..... | ..... | 2 | ..... | 6 |
| Fairchance,* | Fayette, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 | ..... | ..... | 142 |
| Ferguson, | Fayette, | 97,345 | 19,753 | 3,686 | 510 | 65,221 | 282 | 128 | ..... | 5 | ..... | 75 | 7 | 10 | ..... | 220 |
| Fairview, | Somerset, | 57,328 | ..... | 30 | 278 | 57,020 | 271 | 71 | ..... | 1 | 656 | 10 | ..... | 6 | ..... | ..... |
| Grindstone, | Fayette, | 20,214 | 1,576 | 1,445 | 367 | 16,122 | 61 | 82 | ..... | ..... | ..... | ..... | 3 | 6 | ..... | 31 |
| Great Bluff, | Fayette, | 6,214 | 4,142 | 138 | ..... | ..... | 182 | 15 | ..... | ..... | ..... | ..... | 1 | 3 | ..... | 16 |
| Grassy Run, | Somerset, | 28,657 | ..... | ..... | ..... | 28,657 | 211 | 48 | ..... | ..... | 350 | ..... | ..... | 4 | ..... | ..... |
| Hocking, | Somerset, | 48,494 | ..... | ..... | ..... | 48,494 | 240 | 69 | ..... | ..... | 600 | ..... | ..... | 5 | ..... | ..... |
| Hamilton, | Somerset, | 27,935 | ..... | ..... | ..... | 27,935 | 214 | 54 | ..... | ..... | 492 | ..... | ..... | 4 | ..... | ..... |
| Hill Farm, | Fayette, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hurst, | Fayette, | 17,770 | ..... | 300 | 170 | 17,300 | 83 | 61 | 2 | 9 | 75 | 40 | 2 | 4 | ..... | ..... |
| Juniata, | Fayette, | 164,738 | 117,231 | 2,519 | 997 | ..... | 256 | 252 | ..... | ..... | ..... | 720 | 5 | 20 | ..... | 250 |
| Kyle, | Fayette, | 103,206 | 70,003 | 1,246 | 711 | ..... | 259 | 147 | ..... | ..... | ..... | ..... | 2 | 30 | ..... | 164 |
| Keystone, | Somerset, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Leith, | Fayette, | 210,030 | 139,111 | 6,076 | 1,380 | ..... | 259 | 272 | 2 | 2 | ..... | ..... | 12 | 22 | 1 | 304 |
| Leisenring No. 1, | Fayette, | 285,293 | 189,674 | 4,426 | 1,684 | ..... | 272 | 347 | 1 | 3 | ..... | 2,500 | 10 | 43 | 1 | 500 |
| Leisenring No. 2, | Fayette, | 283,010 | 187,965 | 5,301 | 2,167 | ..... | 266 | 322 | 3 | 1 | ..... | 730 | 10 | 46 | 2 | 500 |

TABLE NO. 2.—Continued.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Leisenring No. 3, | Fayette, | 296,000 | 197,656 | 6,333 | 600 | ..... | 267 | 325 | 1 | 7 | ..... | 2,300 | 9 | 42 | 2 | 504 |
| Lynn, | Fayette, | 14,600 | ..... | ..... | ..... | 14,600 | 208 | 24 | ..... | ..... | 150 | ..... | ..... | 3 | ..... | ..... |
| Laughead, | Fayette, | 38,719 | 26,226 | 1,400 | 820 | 1,200 | 279 | 69 | ..... | 1 | 25 | 100 | 2 | 7 | ..... | 50 |
| Lemont No. 1, | Fayette, | 120,900 | 90,629 | 5,614 | 4,889 | ..... | 278 | 202 | ..... | 1 | ..... | ..... | 6 | 13 | ..... | 227 |
| Lemont No. 2, | Fayette, | 199,101 | 149,251 | 2,488 | 1,509 | 40 | 270 | 307 | ..... | 2 | ..... | 15 | 6 | 16 | ..... | 350 |
| Morrell, | Fayette, | 251,318 | 187,906 | 7,976 | 1,166 | ..... | 311 | 346 | 1 | 5 | ..... | 333 | 13 | 30 | ..... | 400 |
| Mahoning—Atlas, | Fayette, | 198,246 | 153,000 | 3,853 | 1,570 | ..... | 296 | 304 | 2 | 3 | ..... | 1,142 | 11 | 17 | ..... | 286 |
| Mt. Braddock, | Fayette, | 131,219 | 95,000 | 3,650 | 1,200 | ..... | 210 | 279 | 1 | 1 | ..... | ..... | 9 | 22 | ..... | 390 |
| Mt. Hope, | Fayette, | 32,238 | 21,492 | 25 | 20 | ..... | 252 | 40 | ..... | ..... | 20 | ..... | 1 | 3 | ..... | 40 |
| Nellie, | Fayette, | 231,750 | 152,500 | 3,000 | ..... | ..... | 286 | 281 | ..... | 2 | ..... | ..... | 3 | 32 | ..... | 329 |
| Nellie, | Somerset, | 25,000 | ..... | ..... | ..... | 25,000 | 200 | 41 | ..... | 1 | 235 | ..... | ..... | 3 | ..... | ..... |
| Olyphant, | Fayette, | 106,575 | 70,494 | 3,252 | 545 | ..... | 249 | 152 | ..... | ..... | ..... | ..... | 7 | 16 | ..... | 152 |
| Oliver No. 1, | Fayette, | 271,868 | 210,189 | 6,375 | 3,069 | 22,967 | 288 | 370 | ..... | 2 | ..... | 200 | 7 | 25 | ..... | 328 |
| Oliver No. 2, | Fayette, | 189,744 | 140,270 | 4,150 | 940 | 21,610 | 286 | 256 | ..... | ..... | ..... | ..... | 4 | 19 | ..... | 300 |
| Paul, | Fayette, | 314,000 | 217,500 | 4,380 | 300 | ..... | 300 | 406 | ..... | 1 | ..... | 150 | 11 | 20 | 1 | 415 |
| Percy, | Fayette, | 24,509 | 15,501 | ..... | 224 | 1,928 | 228 | 40 | ..... | ..... | ..... | ..... | 3 | 6 | ..... | 36 |
| Pine Hill, | Somerset, | 2,500 | ..... | ..... | ..... | 2,500 | 120 | 10 | ..... | ..... | 20 | ..... | ..... | 2 | ..... | ..... |
| Ponfeigh, | Somerset, | 2,000 | ..... | 400 | ..... | 2,000 | 200 | 24 | ..... | ..... | 80 | 10 | 2 | 2 | ..... | ..... |
| Redstone, | Fayette, | 227,005 | 155,582 | 7,731 | 539 | ..... | 263 | 355 | 1 | 3 | ..... | ..... | 14 | 42 | 2 | 446 |
| Stewart, | Fayette, | 121,055 | 76,782 | 3,084 | 588 | 338 | 312 | 120 | 1 | ..... | ..... | 10 | 5 | 10 | ..... | 120 |
| Snider, | Fayette, | 7,708 | ..... | ..... | 7,708 | ..... | 215 | 9 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| Smock, | Fayette, | 94,677 | ..... | 100 | ..... | 94,577 | 234 | 101 | ..... | 3 | 936 | 6 | 1 | 8 | ..... | ..... |
| Smithfield, | Fayette, | 6,812 | 1,200 | ..... | ..... | 5,000 | 150 | 15 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 12 |
| Statler, | Somerset, | 55,000 | ..... | ..... | ..... | 55,000 | 250 | 134 | ..... | ..... | 500 | ..... | ..... | 10 | ..... | ..... |
| Shaws, | Somerset, | 45,855 | 11,358 | 262 | 1,005 | 127,556 | 246 | 168 | ..... | ..... | 1,200 | ..... | 2 | 13 | ..... | 75 |
| Standard, | Somerset, | 5,000 | ..... | ..... | 1,000 | 4,000 | 180 | 14 | ..... | ..... | 60 | ..... | ..... | 2 | ..... | ..... |
| Tub Mill Run, | Somerset, | 25,000 | ..... | ..... | 7,650 | 17,350 | 240 | 45 | ..... | ..... | 240 | ..... | ..... | 4 | ..... | ..... |
| Thomas, | Somerset, | 28,213 | ..... | ..... | ..... | 28,213 | 286 | 30 | ..... | ..... | 280 | ..... | ..... | 1 | ..... | ..... |
| Trotter, | Fayette, | 284,015 | 187,722 | 7,240 | 464 | ..... | 268 | 433 | 2 | 5 | ..... | 500 | 8 | 44 | ..... | 464 |
| Uniondale, | Fayette, | 21,589 | 17,463 | 681 | 526 | ..... | 233 | 65 | ..... | ..... | ..... | ..... | 3 | 6 | ..... | 74 |
| Wynn, | Fayette, | 13,000 | 8,107 | 189 | ..... | ..... | 63 | 73 | ..... | ..... | ..... | ..... | 2 | 5 | ..... | 70 |
| Wheeler, | Fayette, | 89,099 | 67,317 | 1,475 | 891 | ..... | 313 | 98 | ..... | 3 | ..... | 18 | 4 | 9 | ..... | 103 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Washington No. 1, | Fayette, | 714,988 | 181,858 | 3,540 | 2,889 | 435,772 | 311 | 565 | 4 | ..... | 3,600 | 1,000 | 4 | 28 | 1 | 320 |
| Washington No. 2, | Fayette, | 88,205 | ..... | 960 | 90 | 87,155 | 298 | 47 | ..... | ..... | 300 | 400 | 2 | 3 | ..... | ..... |
| Washington No. 3, | Fayette, | 36,000 | ..... | ..... | ..... | 36,000 | 250 | 56 | 1 | ..... | 300 | ..... | ..... | 5 | ..... | ..... |
| Walker, | Somerset, | 8,963 | ..... | ..... | ..... | 8,963 | 220 | 11 | ..... | ..... | 120 | ..... | ..... | 1 | ..... | ..... |
| Yoder, | Somerset, | 153,067 | 102,553 | 5,481 | 685 | ..... | 263 | 195 | ..... | 2 | ..... | 350 | 7 | 29 | 1 | 240 |
| Youngstown, | Fayette, | 6,501,545 | 3,493,209 | 111,963 | 60,849 | 1,497,780 | 15,013 | 8,650 | 25 | 71 | 12,611 | 11,434 | 212 | 767 | 11 | 8,390 |
| Total, | | | | | | | | | | | | | | | | |

* Idle all year.

TABLE No. 3—Showing the number of each class of Employes at each Colliery in the Fifth Bituminous District during the year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Bessie, | 1 | ..... | 80 | 2 | 4 | ..... | 1 | 88 | 1 | 1 | 2 | ..... | ..... | 1 | 5 | 93 |
| Berlin, | ..... | ..... | 7 | ..... | 1 | ..... | ..... | 8 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 9 |
| Casselman, | 1 | ..... | 26 | 1 | 2 | ..... | 5 | 35 | ..... | 1 | ..... | ..... | ..... | 1 | 2 | 37 |
| Cumberland, | 1 | ..... | 102 | ..... | 6 | 2 | 2 | 113 | ..... | 2 | ..... | ..... | 4 | 1 | 7 | 120 |
| Clarissa, | 1 | ..... | 41 | 3 | 7 | ..... | ..... | 52 | ..... | 1 | ..... | ..... | 36 | 2 | 39 | 91 |
| Chester, | 1 | ..... | 25 | 1 | 2 | ..... | 3 | 32 | ..... | 1 | 2 | ..... | 14 | 1 | 18 | 50 |
| Crossland, | 1 | ..... | 46 | 2 | 4 | ..... | ..... | 53 | ..... | 1 | 1 | ..... | 44 | 2 | 48 | 101 |
| Cheat Haven, | 1 | ..... | 30 | 1 | 3 | ..... | 4 | 39 | 1 | 1 | ..... | ..... | 1 | 1 | 4 | 43 |
| Connellsville No. 1, | 1 | ..... | 27 | 1 | 2 | 4 | 2 | 37 | ..... | 1 | 1 | ..... | 19 | 2 | 23 | 60 |
| Edna, | ..... | ..... | 2 | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 |
| Elm Grove, | 1 | 1 | 80 | 4 | 8 | 1 | 3 | 98 | 1 | 2 | 3 | ..... | 50 | 4 | 60 | 158 |
| Elenora, | 1 | ..... | 14 | 1 | 2 | ..... | 1 | 19 | ..... | 1 | ..... | ..... | ..... | ..... | 1 | 20 |
| Fairchance,* | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Ferguson, | 1 | 2 | 63 | 14 | 5 | 2 | 6 | 93 | 1 | 2 | 4 | ..... | 26 | 2 | 35 | 128 |
| Fairview, | 1 | ..... | 55 | ..... | 6 | ..... | 1 | 63 | ..... | 2 | ..... | ..... | 4 | 2 | 8 | 71 |
| Grindstone, | 1 | 2 | 50 | 1 | 4 | 2 | 6 | 66 | 1 | 2 | 3 | ..... | 8 | 2 | 16 | 82 |
| Great Bluff,† | 1 | ..... | 6 | 1 | 1 | ..... | ..... | 9 | ..... | 1 | ..... | ..... | 4 | 1 | 6 | 15 |
| Grassy Run, | 1 | ..... | 42 | ..... | 4 | ..... | ..... | 47 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 48 |
| Hocking, | 1 | ..... | 58 | ..... | 5 | 2 | 1 | 67 | ..... | ..... | ..... | ..... | ..... | 2 | 2 | 69 |
| Hamilton, | 1 | ..... | 44 | ..... | 4 | ..... | 1 | 50 | ..... | 1 | ..... | ..... | 2 | 1 | 4 | 54 |
| Hill Farm,‡ | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hurst, | 1 | 1 | 45 | 2 | 3 | ..... | ..... | 52 | ..... | 1 | 3 | ..... | 4 | 1 | 9 | 61 |
| Juniata, | 1 | 1 | 120 | ..... | 12 | 1 | 15 | 150 | ..... | 3 | 3 | ..... | 94 | 2 | 102 | 252 |
| Kyle, | 1 | ..... | 74 | ..... | 9 | ..... | 3 | 87 | 1 | 2 | 2 | ..... | 53 | 2 | 60 | 147 |
| Keystone, * | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Leith, | 1 | 2 | 129 | ..... | 15 | 4 | 11 | 162 | 1 | 3 | 8 | ..... | 96 | 2 | 110 | 272 |
| Leisenring No. 1, | 1 | 3 | 178 | ..... | 16 | 6 | 24 | 228 | 1 | 7 | 7 | ..... | 101 | 3 | 119 | 347 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Leisenring No. 2, | 1 | 3 | 153 | ..... | 16 | 4 | 13 | 190 | 1 | 5 | 5 | ..... | 118 | 3 | 132 | 322 |
| Leisenring No. 3, | 1 | 4 | 158 | ..... | 13 | 4 | 13 | 193 | 1 | 6 | 7 | ..... | 115 | 3 | 132 | 325 |
| Lynn, | 1 | ..... | 16 | ..... | 2 | ..... | 2 | 21 | ..... | ..... | ..... | ..... | 1 | 2 | 3 | 24 |
| Laughead, | 1 | ..... | 25 | 1 | 2 | ..... | ..... | 29 | 1 | 2 | 2 | ..... | 33 | 2 | 40 | 69 |
| Lemont No. 1, | 1 | 1 | 100 | ..... | 11 | ..... | 10 | 123 | 1 | 4 | 6 | ..... | 66 | 2 | 79 | 202 |
| Lemont No. 2, | 1 | 2 | 140 | ..... | 14 | 3 | 14 | 174 | 2 | 5 | 6 | ..... | 118 | 2 | 133 | 307 |
| Morrell, | 1 | 3 | 137 | ..... | 23 | 1 | 40 | 205 | 1 | 3 | 5 | ..... | 130 | 2 | 141 | 346 |
| Mahoning—Atlas, | 1 | 3 | 146 | ..... | 14 | ..... | 15 | 179 | 1 | 4 | 5 | ..... | 114 | 1 | 125 | 304 |
| Mt. Braddock, | 1 | 2 | 125 | 3 | 13 | ..... | 5 | 149 | 1 | 3 | 8 | ..... | 115 | 3 | 130 | 279 |
| Mt. Hope, | 1 | ..... | 22 | ..... | 3 | ..... | ..... | 26 | 1 | ..... | ..... | ..... | 12 | 1 | 14 | 40 |
| Nellie, | 1 | 1 | 150 | 6 | 16 | 3 | 6 | 183 | 2 | 3 | 4 | ..... | 86 | 3 | 98 | 281 |
| Nellie, | 1 | ..... | 35 | ..... | 3 | ..... | ..... | 39 | 1 | ..... | ..... | ..... | ..... | 1 | 2 | 41 |
| Olyphant, | 1 | 1 | 80 | ..... | 7 | ..... | 7 | 96 | 1 | 2 | 3 | ..... | 48 | 2 | 56 | 152 |
| Oliver No. 1, | 1 | 3 | 160 | 2 | 17 | 4 | 34 | 221 | 1 | 10 | 4 | ..... | 132 | 2 | 149 | 370 |
| Oliver No. 2, | 1 | 2 | 126 | 1 | 18 | 4 | 14 | 166 | 1 | 2 | 3 | ..... | 76 | 2 | 84 | 250 |
| Paul, | 1 | 2 | 200 | ..... | 18 | 2 | 5 | 228 | 1 | 5 | 5 | ..... | 149 | 12 | 172 | 400 |
| Percy, | 1 | ..... | 15 | ..... | 4 | ..... | 4 | 24 | ..... | 1 | 1 | ..... | 13 | 1 | 16 | 40 |
| Pine Hill, | ..... | ..... | 7 | ..... | 2 | ..... | ..... | 9 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 10 |
| Ponfeigh, | 1 | ..... | 15 | 2 | 1 | ..... | ..... | 19 | ..... | 1 | 3 | ..... | ..... | 1 | 5 | 24 |
| Redstone, | 1 | 3 | 155 | ..... | 24 | 2 | 15 | 200 | 1 | 5 | 12 | ..... | 134 | 3 | 155 | 355 |
| Stewart, | 1 | 1 | 54 | ..... | 4 | 1 | 3 | 64 | 1 | 2 | 3 | ..... | 48 | 2 | 56 | 120 |
| Snider, | ..... | ..... | 8 | ..... | 1 | ..... | ..... | 9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| Smock, | 1 | 1 | 78 | ..... | 7 | 1 | 2 | 90 | ..... | 2 | 1 | ..... | 5 | 3 | 11 | 101 |
| Smithfield, | 1 | ..... | 7 | ..... | 1 | ..... | ..... | 9 | 1 | ..... | ..... | ..... | 4 | 1 | 6 | 15 |
| Statler, | 1 | ..... | 125 | ..... | 5 | ..... | ..... | 131 | 1 | 1 | ..... | ..... | ..... | 1 | 3 | 134 |
| Shaws, | 1 | ..... | 124 | ..... | 13 | 3 | 4 | 146 | ..... | 1 | 1 | ..... | 18 | 2 | 22 | 168 |
| Standard, | 1 | ..... | 9 | ..... | 2 | ..... | ..... | 12 | ..... | ..... | ..... | ..... | 2 | ..... | 2 | 14 |
| Tub Mill Run, | 1 | ..... | 35 | ..... | 4 | ..... | 1 | 41 | ..... | 1 | ..... | ..... | 2 | 1 | 4 | 45 |
| Thomas, | 1 | ..... | 26 | ..... | 1 | ..... | ..... | 28 | ..... | ..... | ..... | ..... | 1 | 1 | 2 | 30 |
| Trotter, | 1 | 3 | 195 | ..... | 18 | 5 | 22 | 244 | 1 | 5 | 6 | ..... | 174 | 3 | 189 | 433 |
| Uniondale, | 1 | 1 | 25 | 4 | 2 | ..... | 3 | 36 | ..... | 1 | 1 | ..... | 26 | 1 | 29 | 65 |
| Wynn, | 1 | ..... | 40 | ..... | 3 | ..... | 2 | 46 | 1 | 1 | 1 | ..... | 23 | 1 | 27 | 73 |
| Wheeler, | 1 | 1 | 44 | ..... | 4 | ..... | 4 | 54 | 1 | 2 | 3 | ..... | 37 | 1 | 44 | 98 |
| Washington No. 1, | 3 | 1 | 375 | ..... | 30 | 2 | 22 | 433 | 3 | 5 | 5 | ..... | 115 | 4 | 132 | 565 |
| Washington No. 2, | | | | | | | | | | | | | | | | |
| Washington No. 3, | 1 | ..... | 35 | ..... | 3 | 1 | 3 | 43 | ..... | 1 | 2 | ..... | 1 | ..... | 4 | 47 |
| Walker, | 1 | ..... | 47 | ..... | 5 | ..... | ..... | 53 | 1 | 1 | ..... | ..... | ..... | 1 | 3 | 56 |
| Yoder, | ..... | ..... | 9 | ..... | 1 | ..... | ..... | 10 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 11 |
| Youngstown, | 1 | 2 | 87 | ..... | 12 | 2 | 11 | 115 | 1 | 4 | 7 | ..... | 66 | 2 | 80 | 195 |
| Total, | 59 | 52 | 4,632 | 53 | 462 | 66 | 363 | 5,688 | 37 | 124 | 148 | ..... | 2,542 | 111 | 2,962 | 8,650 |

* Idle all the year.
† Worked out and abandoned during the year.
‡ Abandoned; report included in Ferguson Mine.

TABLE No. 4—List of Fatal Accidents that occurred in and about the Mines of the Fifth Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Jan. 26, | Chas. McQuiston, | Miner, | 35 | M. | 2 | Hurst, | Fayette, | Terribly burned by an explosion of fire damp; died a few hours after. |
| 26, | Peter Hawser, | Miner, | 23 | S. | .... | Hurst, | Fayette, | |
| Mar. 6, | Robert Hixenbaugh, | Hoisting engineer, | .... | M. | 3 | Mt. Braddock, | Fayette, | Skull fractured by flying missile caused by bursting of a steam separator in engine room. |
| April 8, | John Gonda, | Miner, | 29 | M. | 2 | Washington, | Fayette, | Death caused by fractured skull. Was struck by a flying piece of coal from a shot. |
| 15, | Harrison D. Flickinger, | Miner, | 15 | S. | .... | Walker, | Somerset, | Killed while he was undermining coal. |
| May 5, | Frank Hoadtz, | Horseback man, | 38 | M. | 1 | Mahoning—Atlas, | Fayette, | Killed while going back to relight a blast of dynamite which exploded while he was standing over the hole. |
| 7, | Frank Brunclick, | Miner, | 39 | M. | 3 | Washington, | Fayette, | Killed by a fall of slate in his working place. |
| June 2, | John Zomer, | Hauler, | 31 | M. | .... | Cumberland, | Somerset, | Head crushed between mine cars while unhitching his horse from trip while cars were in motion. |
| July 5, | Dennis Reynolds, | Miner, | 40 | M. | 6 | Redstone, | Fayette, | Killed by slate falling on him. |
| Aug. 10, | Andy Lukato, | Miner, | 45 | M. | 5 | Washington, | Fayette, | Killed by a trip of mine cars while he was traveling on hauling road, where he was forbidden to be. |
| 12, | Anthony Linney, | Horseback man, | 34 | M. | 4 | Leisenring No. 1, | Fayette, | Killed while ripping roof coal, by a fall of coal and slate. |
| Sept. 6, | Joseph Kalina, | Miner, | 36 | M. | 3 | Morrell, | Fayette, | Killed by a fall of slate in his working place. |
| 7, | John Rahaly, | Miner, | .... | M. | 2 | Washington, | Fayette, | Killed by falling roof. |
| Sept. 14, | Joe Havanick, | Miner, | 28 | M. | 1 | Trotter, | Fayette, | Killed by a fall of roof coal and slate while drawing out stumps. |
| Oct. 7, | John Cornish, | Miner, | .... | M. | 2 | Leisenring No. 2, | Fayette, | Roof fell and killed him. |
| Oct. 18, | Thomas B. Richardson, | Miner, | 35 | M. | 3 | Leisenring No. 3, | Fayette, | Roof fell and killed him. |
| 22, | Harry Crawford, | Miner, | 37 | M. | 1 | Leith, | Fayette, | Those men went back to cut out stumps when the roof fell, killing them both. |
| 22, | George Washington, | Miner, | 28 | M. | 3 | Leith, | Fayette, | |
| 29, | John Burlock, | Miner, | .... | M. | 4 | Leisenring No. 2, | Fayette, | Slate fell on him, killing him. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Nov. | 12, | Pleasant Lynch, ..... | Miner, ..... | 50 | M. | 4 | Leisenring No. 2, ..... | Fayette, ..... | Slate fell in the gob, knocking out a post and killed him. |
| | 15, | Edward Tensky, ..... | Miner, ..... | 28 | M. | 2 | Trotter, ..... | Fayette, ..... | A piece of slate fell on him, fatally injuring him internally. |
| Dec. | 3, | Henry Stupka, ..... | Miner, ..... | 28 | M. | 1 | Elenora, ..... | Fayette, ..... | Coal fell and killed him. |
| | 11, | David J. Crosby, ..... | Stonemason, ..... | 40 | M. | .... | Stewart, ..... | Fayette, ..... | Killed by being run over by a trip of mine cars on the slope. |
| | 24, | Mike Ochlane, ..... | Miner, ..... | 44 | M. | 6 | Mahoning—Atlas, ..... | Fayette, ..... | Killed by a fall of slate. |
| | 30, | John Stickle, ..... | Miner, ..... | 49 | M. | 5 | Crossland, ..... | ..... | Roof fell and killed him instantly. |

TABLE No. 5—List of Non-Fatal Accidents that occurred in and about the mines of the Fifth Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Jan. 16, | John Fair, | Miner, | 36 | M. | Nellie, | Somerset, | Both legs broken below the knee by fall of roof coal. |
| 22, | David Morgan, | Miner, | 45 | S. | Smock, | Fayette, | Leg broken by fall of slate while drawing ribs. |
| 26, | John Mitchell, | Driver, | 20 | S. | Hurst, | Fayette, | |
| 26, | Andy Hawser, | Miner, | 40 | S. | Hurst, | Fayette, | |
| 26, | John Augustine, | Miner, | 38 | S. | Hurst, | Fayette, | These men were all burned and injured by an explosion of fire damp. Mitchell very seriously; the others slightly. |
| 26, | George Kenna, | Miner, | 25 | S. | Hurst, | Fayette, | |
| 26, | John Galla, | Miner, | 50 | M. | Hurst, | Fayette, | |
| 26, | Joseph Galla, | Miner, | 19 | S. | Hurst, | Fayette, | |
| 26, | Mike Knowanick, | Miner, | 45 | M. | Hurst, | Fayette, | |
| 27, | Mike Yanear, | Driver, | 25 | S. | Redstone, | Fayette, | Left leg broken below the knee. |
| Feb. 16, | Amos Jefferies, | Charger, | 21 | S. | Redstone, | Fayette, | Leg broken below the knee. |
| 24, | Steve Havanico, | Driver, | 24 | S. | Lemont No. 2, | Fayette, | Ankle injured by bumper of car. |
| 27, | John W. Reynolds, | Driver, | 14 | S. | Redstone, | Fayette, | Right leg broken above the knee. Fell in front of water wagon while it was in motion. |
| Mar. 6, | Robert Meade, | Fireman, | | M. | Mt. Braddock, | Fayette, | Skull fractured by having been struck by falling smoke stack, caused by the bursting of a steam separator in engine room. Was also burned by falling on hot cinders. |
| 16, | Neil Freil, | Driver, | 26 | S. | Leisenring No. 3, | Fayette, | Collar bone broken. While riding on loaded wagon his shoulder struck the roof. |
| 22, | Peter McMahon, | Driver, | 23 | S. | Trotter, | Fayette, | Foot badly bruised. |
| 26, | William W. Jones, | Driver, | 51 | M. | Wheeler, | Fayette, | Body and hips badly bruised. |
| 27, | John Shirlock, | Driver, | 28 | M. | Mahoning—Atlas, | Fayette, | Foot badly bruised. |
| 29, | S. Matchoski, | Miner, | 40 | M. | Paul, | Fayette, | Leg and three ribs broken by a fall of slate. |
| 17, | John Balecta, | Miner, | 18 | S. | Elenora, | Fayette, | Leg broken by a fall of slate. |
| 18, | Mike Ward, | Driver, | 20 | S. | Nellie, | Fayette, | Body bruised; fell between wagons. |
| 28, | James McMullen, | Driver, | 28 | M. | Morell, | Fayette, | Arm broken while coupling cars. |
| May 1, | Mike Sinko, | Miner, | 25 | S. | Elm Grove, | Fayette, | Arm cut and bruised. |
| 5, | John Stupec, | Miner, | 28 | M. | Elenora, | Fayette, | Back injured by slate falling. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 9, | Mike Burke, | Rope rider, | 30 | M. | Elm Grove, | Fayette, | Foot and leg hurt. |
| | 18, | Robert Beaman, | Miner, | 28 | M. | Morrell, | Fayette, | Body badly bruised; roof fell on him. |
| | 22, | Joe Pesta, | Miner, | 26 | S. | Nellie, | Fayette, | Two fingers cut off. |
| | 27, | Stephen Vargo, | Miner, | 28 | S. | Mahoning—Atlas, | Fayette, | Arm and face hurt by slate falling. |
| June | 3, | Albert Walker, | Miner, | 24 | S. | Hurst, | Fayette, | Leg broken by a fall of coal. |
| | 6, | Andy Skirmick, | Miner, | 34 | M. | Leith, | Fayette, | Slightly bruised about hips; caught between car and rib. |
| | 8, | Jacob Wilson, Sr., | Miner, | 65 | M. | Laughead, | Fayette, | Shoulder and ankle hurt by a fall of slate. |
| | 15, | Patrick Donnelly, | Miner, | 21 | S. | Wheeler, | Fayette, | Ribs broken and shoulder fractured; roof fell on him. |
| | 18, | Peter Gray, | Driver, | 31 | M. | Leith, | Fayette, | Head badly cut and back and shoulders severely hurt by a fall of roof coal and slate. |
| | 26, | Andy Pastor, | Miner, | 30 | M. | Ferguson, | Fayette, | Leg broken by a fall of coal. |
| | 30, | Sam Washington, | Miner, | 30 | M. | Ferguson, | Fayette, | Badly bruised about body by a runaway wagon. |
| | 30, | Hugh Jeffries, | Driver, | 26 | M. | Ferguson, | Fayette, | Ribs bruised and head cut. |
| Aug. | 12, | Patrick Duffy, | Miner, | 29 | M. | Leisenring No. 1, | Fayette, | Severely bruised about the body. Two ribs and one arm broken. Thigh broken. These three men were ripping down slate when it fell on them, injuring them as above stated. |
| | 12, | Thomas Kenney, | Miner, | 33 | M. | Leisenring No. 1, | Fayette, | |
| | 12, | Joseph Miller, | Mine boss, | 40 | M. | Leisenring No. 1, | Fayette, | |
| | 18, | John Donnelly, | Miner, | 29 | S. | Leisenring No. 3, | Fayette, | Head, back and legs injured. |
| | 25, | Dan Powell, | Miner, | 43 | M. | Morrell, | Fayette, | Feet and legs scalded by steam and hot water from mine pump. |
| | 31, | Frank Wright, | Driver, | 19 | S. | Cheat Haven, | Fayette, | Arm and side injured by being caught between loaded wagon and rib. |
| | 31, | Joseph Harper, | Miner, | 30 | M. | Smock, | Fayette, | Small bone in leg broken; body hurt, and eye cut by fall of slate. |
| Sept. | 6, | John Frain, | Driver, | 30 | S. | Ferguson, | Fayette, | Squeezed about hips; caught between the front of wagon and mule. |
| | 6, | Chas. Louden, | Driver, | 19 | S. | Cheat Haven, | Fayette, | Wrist broken; caught between loaded wagon and post. |
| | 14, | John Whitney, | Miner, | 38 | M. | Trotter, | Fayette, | Hurt by fall of roof while drawing out stumps. |
| | 14, | George Gelock, | Miner, | 37 | M. | Leisenring No. 3, | Fayette, | Left hip dislocated and left ear cut off by a fall of roof. |
| | 21, | Peter McMahon, | Driver, | 24 | M. | Trotter, | Fayette, | Contusion of leg and dislocation of foot by his heel catching bumper and throwing him across track. |
| | 24, | Martin Markey, | Miner, | 42 | M. | Mahoning—Atlas, | Fayette, | Hurt about hips by a fall of slate. |
| | 29, | John Hines, | Car runner, | 17 | S. | Oliver No. 1, | Fayette, | While dropping cars to the shaft bottom he was caught between the bumpers, crushing his legs. |
| Oct. | 5, | Alexander Samesank, | Miner, | 34 | M. | Ferguson, | Fayette, | Injured on breast and back. |
| | 7, | Henry Deck, | Driver, | 24 | M. | Oliver No. 1, | Fayette, | Foot crushed by being caught between bumper of car and rib. |
| | 12, | Lawrence Spolar, | Miner, | 37 | .... | Lemont No. 2, | Fayette, | Right leg broken below knee by a fall of roof. |
| | 21, | John Appleby, | Miner, | 38 | M. | Youngstown, | Fayette, | Finger mashed while unloading a car of ties. |
| | 23, | George Bendorf, | Miner, | 25 | S. | Trotter, | Fayette, | Arm fractured. |
| | 26, | John Morgan, | Miner, | 30 | M. | Crossland, | Fayette, | Leg injured by a fall of roof coal and slate. |

TABLE No. 5.—Continued.

| Date of accident | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Oct. 27, | John Wagget, | Driver, | 26 | M. | Elm Grove, | Fayette, | Shoulder blade broken and hips squeezed; fell in front of wagon. |
| 28, | Steve Bendlinger, | Carpenter, | 45 | M. | Leisenring No. 2, | Fayette, | Struck by hauling rope on the leg, breaking it. |
| Nov. 15, | Robert Johnson, | Miner, | 32 | M. | Morrell, | Fayette, | These two men were cleaning up a fall when coal fell off the rib, injuring them severely. |
| 15, | William Sims, | Miner, | 24 | M. | Morrell, | Fayette, | |
| 26, | John Monar, | Miner, | 25 | S. | Leisenring No. 3, | Fayette, | Leg broken by a fall of slate. |
| 29, | Mike Hockney, | Miner, | 33 | S. | Leisenring No. 3, | Fayette, | A piece of slate fell from roof, struck him on leg, breaking it. |
| Dec. 6, | Terrence Donnelly, | Miner, | 46 | M. | Wheeler, | Fayette, | Leg and collar bone broken by a fall of slate. |
| 8, | Steve Hido, | Miner, | .... | .... | Smock, | Fayette, | Slightly burned on hands and face by gas. |
| 9, | Cyrus Hoffman, | Miner, | 25 | M. | Fairview, | Somerset, | Head and leg severely cut by a fall of top coal. |
| 15, | James Lacy, | Driver, | 22 | S. | Lemont No. 1, | Fayette, | Leg broken; he stepped off the front of a car. |
| 27, | Fred. Steinmiller, | Miner, | .... | M. | Leisenring No. 3, | Fayette, | Was taking up bottom when his pick slipped and struck his foot, severing an artery. |
| 28, | Harry Hanlin, | Miner, | 19 | S. | Youngstown, | Fayette, | Fell in front of a loaded wagon; leg cut and bruised severely. |
| 28, | John Schimer, | Miner, | .... | .... | Hurst, | Fayette, | Leg broken by a fall of slate. |
| 29, | William Spruce, | Driver, | 24 | S. | Trotter, | Fayette, | Small bone of foot broken. |
| 31, | Charles Trout, | Driver, | 26 | M. | Leisenring No. 3, | Fayette, | Severely injured about breast and back. |

# Sixth Bituminous District.

(CAMBRIA, SOMERSET AND INDIANA COUNTIES.)

Johnstown, Pa., February, 1898.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I have the honor herewith of presenting my annual report as Inspector of Mines for the Sixth bituminous district.

I am pleased to report a decrease in the number of fatal accidents from eleven, in 1896, to eight, in 1897, while the total quantity of coal mined has been increased from 4,722,871 tons, in 1896, to 5,501,611 tons, in 1897.

The mines have not only been maintained in their usual condition, but many of them have been greatly improved by the adoption of better plans of mining, upon which comments will be made in another part of the report. There will be found embodied herein also the usual tables and statistics, together with a description of each mine as regards ventilation and drainage, and the improvements and developments at the various collieries during the year.

Very respectfully,

J. T. EVANS.

In the report for 1894 a table was given, showing the number of tons of coal mined per fatal and non-fatal accidents from the year 1885 to 1894, inclusive. This showed 442,030 tons per fatal, and 283,735 tons per non-fatal accident. The two following years—1895 and 1896—showed 480,506 tons per each fatal and 260,846 tons per each non-fatal accident. The present report shows 687,701 tons per each fatal and 275,080 tons per non-fatal accident. Thus, there is a gradual decrease in the number of fatal accidents each year in proportion to the quantity of coal mined. The following is the list of accidents for 1897, and how caused:

### Fatal Accidents.

| | |
|---|---|
| By falls of coal, | 6 |
| By falls of rock, | 1 |
| By mine wagons, | 1 |
| Total, | 8 |

### Non-Fatal Accidents.

| | |
|---|---|
| By falls of coal, | 6 |
| By falls of rock, | 4 |
| By mine wagons, | 5 |
| By hauling rope, | 2 |
| By falling from tipple, | 1 |
| By railroad cars, | 1 |
| Burned by powder, | 1 |
| Total, | 20 |
| Number of widows, | 5 |
| Number of orphans, | 7 |

### Summary of Statistics.

| | |
|---|---|
| Total number of mines in the district, | 88 |
| Number of mines not working during the year, | 10 |
| Number of mines reported, | 78 |
| Total coal production, in net tons, | 5,501,611 |
| Total coke production, in net tons, | 240,559 |
| Total coal used for steam and heat, tons, | 53,099 |
| Total coal sold to local trade, tons, | 33,439 |
| Total coal shipments, tons, | 5,034,119 |
| Number of fatal accidents, | 8 |
| Number of non-fatal accidents, | 20 |
| Number of tons of coal mined per each fatal accident, | 687,701 |
| Number of tons of coal mined per each non-fatal accident, | 275,080 |
| Number of men employed per each fatal accident, | 1,120 |
| Number of men employed per each non-fatal accident, | 448 |
| Number of employes, inside, | 8,203 |
| Number of employes, outside, | 763 |
| Total number employed, | 8,966 |
| Average number of days worked, | 174½ |

## Improvements Made During the Year 1897.

The following mines have put in improvements during the past year: "Stineman," a new rope haulage; "Puritan No. 1," electric mining machines; "Galitzin shaft," a new rope haulage; "Gallitzin slope," electric motors for hauling, and electric mining machines; "Columbia," a rope haulage plant and a Stine fan; "Flanigan Run," a fan to replace a furnace; "Sterling No. 8," mining machines; "Juniata," an electric plant to run mining machines; "Sterling No. 11," a compressed air plant to run mining machines; "Lancashire No. 7," an electric plant for hauling and mining coal; "West Branch," a compressed air plant from which the mining machines receive power; "Empire," a compressed air plant from which power is obtained to run the machine punches which are used to mine coal; "Lorain," a compressed air plant to run the mining machines. For "Rolling Mill," mine, the Cambria Iron Company have contracted for and have started to erect a very large compressed air plant, from which sufficient power will be obtained to run five air locomotives and a sufficient number of machines to mine from twelve to fifteen hundred tons of coal per day.

## Notes and Comments on the State of Mining in the District.

A list of improvements introduced at the mines in the way of machinery for hauling and mining is given above. Here I desire to note other improvements quietly being made at a very large number of the collieries, which are of more importance to mining men than the putting in of machinery. I refer to changes that are taking place in the system of mining by the adoption of larger pillars, wider headings or hauling roads, the conducting of water through back headings not used for hauling purposes, etc.

It is clear that the three principal points to be aimed at in a system of mining are: First, economical methods; second, a plan by which the greatest number of tons of marketable coal per acre can be mined; third, a system which will insure safety and good sanitary conditions in the mine. The methods of mining now being adopted, which I have alluded to above, will cover these points. It needs no argument to convince a man who has passed through a number of mines and compared the old system of narrow headings and small pillars with the new system of wide headings and large pillars, as to which is the safer and more economical method. No one knows better than he who has tried it how difficult it is to convince some people of the superiority of other methods of mining over those to which they have been accustomed. It is a case where seeing not, generally means believing not. Until they have been shown the newer and better system in actual and successful operation, the invariable argument is, "it can't be done," without any investigation whatever.

The adoption of such improvements in the plans of mining as we have mentioned, has brought some of our operations very nearly to the point of being model collieries, and it is a fact that in these cases the cost of mining has been reduced to the minimum, while the miners' wages have not been affected, and the safety and sanitary condition of the mines have been greatly improved. I am pleased to state that in this class of mines an unusual degree of interest is being taken in providing good ventilation for the men—something which is just as necessary to the successful operation of a mine as steam in a boiler is to the running of machinery. Yet there are thousands of dollars spent at some mines for the purpose of increasing the production, without any effort being made to provide more air for the increased number of men necessary to raise the output. This is a great mistake. Let good ventilation first be provided for; then the mine will be in condition to be developed economically and safely.

However, we believe that a new era in the history of mining has dawned within the past few years, during which greater advancement has been made than in any similar period in the past. Now, the men who cling to the old fogy ideas of mining are no longer required, and to fill their places men of advanced ideas are being sought. The law, progress and humanity demand that to such must be committed not only the economical operations of the plants connected with the great industry, but, to a great extent, the health and safety of the many thousands who toil beneath the ground.

## DESCRIPTION OF MINES.

### Johnstown District.

There are four mines located in this district, namely: "Rolling Mill," "Haws' Shaft," "Gautier No. 3" and "Conemaugh."

The first named is one of the largest in this inspection district. The sanitary condition is fairly good, as every precaution is taken by those in charge to prevent accidents and to insure, as far as practicable, the health and comfort of the employes. It is, however, one of the most difficult mines in the district to keep properly ventilated, as the fan is so far away from the workings and the air has to be forced through so much of the old worked out places that it requires the greatest vigilance on the part of those in charge. I expect, before another annual report is made, to see a new fan placed here, near the face of the mine.

"Haws' shaft," "Gautier" and "Conemaugh" mines are in first class condition as regards ventilation, drainage and safety. The two former are ventilated by fans, and the latter by a furnace. A visit to either of these workings is always a pleasure. Years of experience in examining these mines have given me assurance that no part of the law is being violated.

"Ingleside."—The drainage and ventilation are good, and the general conditions for safety very satisfactory.

## Somerset County Mines.

"Krebs" is located at Listie, about two miles north of the town of Somerset. It is one of the largest collieries in the county, employing 119 men inside. The ventilation and drainage have been well taken care of, but the capacity of the mine has been increased to such an extent that the furnace is no longer adequate to do the work of ventilating. I, therefore, expect to see a fan put in here very soon, as those in charge have a desire to keep the mine up to the requirements of the law in every detail.

"Ashland."—This colliery has not been operated very much during the past year. I examined it twice, and each time found it in good condition, both as regards ventilation and drainage.

"Stonycreek."—The drainage, ventilation and general condition of this colliery are very satisfactory. Considerable trouble has been experienced here by local swamps in the seam of coal, which entails a great deal of expense in draining the water from the mine.

## Scalp Level District.

There will be found below a brief description, based upon a recent visit, of "Eureka No. 30," a part of the extensive workings now being developed by the Berwind-White Coal Mining Company, in the Scalp Level coal field, Somerset county.

The mine is located about three-fourths of a mile southwest of Scalp Level, and, like all the others which the Berwind-White Company is opening in the field, is on the B, or Miller, seam of coal. The direction of the main heading is south, twenty degrees west, and it will meet the outcrop of the coal on Shade Creek, in a distance of about two miles. This heading is driven fourteen feet in width, or wide enough for two tracks—one for empty trips going in and the other for loaded trips coming out. On each side of the main heading is a parallel air course, the air being split near the fan, one part going straight ahead along one course, the other crossing over the main hauling road and thence along the other parallel airway. At each pair of cross entries, which are to be very long, there will be an overcast, giving each pair a separate split of air.

The pillars between the main heading and the main airways will be 35 feet, and those between the main airway and the first room off the cross entry will be 125 feet on each side of the main heading. Each cross heading is turned off on a regular curve, so that the motors travel at as great a speed and with as little friction as possible. Cross

headings are turned every 390 feet. The rooms, in some parts of the mine, are turned off every 42 feet, giving a 24 foot room and an 18 foot pillar. The room is driven narrow—9 feet—for a distance of 30 feet, before being widened out to 24 feet. In other parts of the mine three rooms are turned from one room neck. The latter method has the advantage of giving a stronger pillar along the headings and making fewer frogs and switches, thus lessening the likelihood of the motor getting off the track from a poorly constructed or misplaced switch.

All the mining is done by machines driven by compressed air. The machines now used are the Ingersoll-Sargent, Harrison & Sullivan, all of the puncher type.

The mine is well ventilated by a 12x10½ reversible Capell fan, driven by a 17x18 inch Taylor engine, directly connected, and constructed almost entirely of steel.

The hauling is done entirely by electric motors, and not a horse or mule is in the mine. At present two general electric motors, weighing ten tons each and rated at eighty horse power are used to do the work. Each of these can easily haul thirty loaded mine cars on a grade of one per cent. against the loads. The machinery in the power house consists of two 242 horse power 18x18 inch Ridgway engines, and two 150 kilo-watt General Electric dynamos, in which the power usually carried with the load on is 550 volts. The foundations are about completed for another 18x18 inch Ridgway engine and a 150 kilo-watt Thompson-Ryan generator. The power used to drive the coal cutting machinery is furnished by one 24x26½x30 inch Ingersoll-Sargent compressor. The foundation is in readiness for another of the same size. The steam for the engines, compressors, etc., is furnished by three 250 horse power Sterling water tube boilers.

The tipple is of white oak, very substantially built. On it are two Phillips automatic cross-over dumps. The grades on both the loaded and empty tracks are so arranged that the cars are handled entirely by gravity. The tipple is capable of handling 3,000 tons of coal per day, and the capacity of the mine is expected to exceed 2,000 tons daily.

There are three other mines opened, or being opened up, near Scalp Level on the same general plan as "No. 30," and the equipment of these, when completed, will be about the same.

## South Fork District.

"Webster No. 3" is the largest mine in the district, having the greatest output of coal for 1897. There are two hauling ropes and two fans for ventilating—one used for the upper part of the mine, lying above the water level, and the other for the dip workings. The ventilation, drainage and general conditions of this colliery are good, as

no expense is spared to have everything of the best, and the mine is conducted in every particular in accordance with the law.

"Stineman."—This is also a large plant, with two divisions of work, one above the water level and the other below, requiring two complete rope haulage systems. At present, one fan is used to ventilate both sides, which gives satisfaction, but the mine is being increased in capacity very fast, and the work is getting farther away each year, so that it requires more ventilating power to meet emergencies, and the operators are now making another opening to place a second fan, which will be used exclusively for the dip workings, that part of the mine now being ventilated without any doors, except check doors, for forcing the air up into the rooms, as each heading is supplied with a fresh current of air by the use of overcasts in place of doors. The general condition of the mine is now satisfactory.

"Argyle" is one of the mines ventilated by a furnace, and I would here state that if all who use this method had their furnaces attended to as it is here, there would not be so much cause for complaint about furnace ventilation, except from an economical point of view, or where it is used in an attempt to ventilate a mine employing 150 or 200 men. The ventilation, drainage and general conditions of this mine are good.

"Aurora" is also ventilated by a furnace, which gives very good results, as the number of men employed never exceeds seventy-five inside. The condition of the mine, as regards ventilation and drainage, is good, and the general welfare of employes is carefully looked after.

"Euclid" is ventilated by a fan, which gives satisfaction as to the quantity of air produced, while those in charge take good care of the distribution of it to the working places, which is a part of the duty of a foreman that is sadly neglected in some instances, as a large volume of air may be forced into a mine, yet the men get very little benefit from it on account of its not being conducted properly through the working faces. The sanitary condition of the mine is very satisfactory.

"South Fork."—The condition of this mine, I am sorry to say, has been very unsatisfactory for some time, owing to so much steam being conveyed along the slopes, of which there are two, with a steam line on each. One of these slopes is supposed to be the inlet and the other the outlet, but the heat from the steam line causes the air to have a tendency to rise, which almost overpowers the fan in its efforts to force the air down the one slope. I fear the result will be that one of the steam lines will have to be removed, thus carrying it all down one slope. I scarcely see how the mine can be properly ventilated until this change is made.

## Portage District.

There are seven mines in this locality—"Puritan Nos. 1 and 2," "Pilgrim," "Ivy Ridge," "Excelsior," "Sumner" and "Anchor." The last named, however, has been closed for some time.

"Puritan No. 1" is a shaft opening. The mining and hauling is done by electricity and the fan is operated by the same power. The ventilation, especially in the distribution of air and carrying it to the face of the workings, as well as the drainage, has been greatly improved during the past year. "Puritan No. 2" is a drift opening, and is ventilated by the fan of the "Ivy Ridge," the two mines being connected and one fan providing ventilation for both.

The system of mining in the "Ivy Ridge" has been somewhat changed during the year, the result of which has been to improve the ventilation and drainage. The parallel headings, or main airways of the mine, are now driven below the main hauling road, instead of above, thereby enabling them to carry the air in a larger volume to the face of the workings, and to conduct the water from the main road into the lower heading, which gives a dry hauling road.

"Excelsior."—The ventilation of this mine is produced by a 12-foot fan, which gives very good results in its volume, and the air is also well distributed. The drainage and general conditions are well looked after.

"Sumner."—This mine has not been operated very regularly during the year. For several months nothing but headings were being driven, employing only about ten or twelve men, but on my last visit they had increased the force to about thirty-five. Its sanitary condition is good.

"Anchor," as noted above, has not been operated for several months.

## Bens Creek District.

There are five collieries operated in this district—"Sonman shaft," "Sonman No. 1," "Columbia No. 4," "Mentzer" and "Dysert." The two latter mines are old operations and are connected, one fan ventilating both, but very unsatisfactorily. The volume of air is above that required by law, yet, on account of so many old workings which it must pass through, where more or less black-damp is given off, the ventilation is not satisfactory, and it is a very difficult job to correct it, as they were opened up on the single heading plan, making it nearly impossible to put them into anything like lawful condition.

"Columbia No. 4."—The condition of this mine is fair. The ventilation is produced by a furnace, which is at present too far away from the workings to do the work properly, and for this reason the operators propose to move it nearer the face of the workings. This change should give good ventilation, as the system of mining is the very best for the distribution of air.

"Sonman No. 1" is one of the oldest mines in the district, and will soon be worked out. There has been trouble at this place all along on account of ventilation, as there is with all mines which were opened up on the single heading plan, but I found, on my last visit, quite an improvement in both the ventilation and drainage, and am satisfied that the present plans will enable those in charge to keep the mine up to the standard. On my last visit, I measured 15,000 feet of air at the inlet and about 8,000 feet at the extreme face of the mine.

"Sonman Shaft."—The drainage, ventilation and general conditions of this mine are good. Each section of work has its own split of air and a back heading on the lower side of each hauling road, into which the water is conducted, thereby making all hauling roads perfectly dry. Haulage is by machinery, and the power used for pumping is compressed air.

## Lilly District.

Four mines are located at this point, namely: "Sonman No. 2," "Bear Rock," "Lilly Slope" and "Standard." The two latter are connected and ventilated by one fan, set at the "Lilly slope" side. The general condition of these two mines is very satisfactory in every respect, the air and water being so conducted as to insure health and comfort to the employes.

The "Bear Rock" is a small operation, with two drift openings, and is ventilated by a small fire-place, called a furnace, but hardly sufficient to give good ventilation to the mine, although about thirty-five men only are employed.

"Sonman No. 2" is also an old mine, but those in charge are now opening up another section, cutting off the old part entirely and drawing out all the pillars and stumps for the purpose of abandoning it. The new section is being opened on the most improved plans of mining, the ventilation being good, but defective in the old section of the mine.

"Cresson Shaft" is the only mine located at this point. The depth is about 300 feet to the first seam of coal in the upper coal measure, called locally the Lemon, or geologically, the E, bed. The ventilation and drainage, when examined last, were found to be in a fair condition.

## Gallitzin District.

Two mines are located at this point—the "Gallitzin Shaft" and "Gallitzin Slope." The latter is quite a large plant, being opened up in two sections—north and south. From the latter the coal is hauled and mined by electricity. On the north side, coal is hauled by rope, and the mining is done by machinery driven by electricity. The ventilation, drainage and general conditions of the mine are very satisfactory.

"Gallitzin Shaft.—Up to the present time the hauling had been done by mules, but the operators are about completing a rope haulage on the south side of the mine, where the bulk of the coal lies. Ventilation here is usually in a fair condition. On my last examination I found the drainage very much improved, and the mine, as a whole, in a satisfactory condition.

"Amsbury."—The ventilation of this mine has been usually very fair, but the drainage has been somewhat neglected. Upon my last examination, however, I found the drainage considerably improved, and the general condition of the mine at a higher standard than formerly. The ventilation is produced by a fan sixteen feet in diameter.

## Frugality District.

There are three mines located in this district, owned by the Frugality Coal and Coke Company. They are "Dean Nos. 4, 5 and 6." The latter is a comparatively new mine, but has been developed very fast, and it now has a capacity of about 1,000 tons per day. The ventilation is produced by a fan and furnace, each ventilating a separate section of the mine. The general conditions of things here was satisfactory on my last examination. The other two mines are being fast worked out, as all the men are working on pillars and stumps.

## Barnesboro District.

"West Branch."—The coal is mined here by machines, driven by compressed air. This is a new mine, opened up during the past year, but has been developed very rapidly. The ventilation and drainage are carefully looked after. On my last examination I measured 17,800 cubic feet of air in circulation, well distributed and carried to the face of the workings.

"Empire."—This mine is owned and operated by the same company as the "West Branch." The coal is also mined by machinery, driven by compressed air. The ventilation is not as good as it should be, owing to the fan not yet having been put in. The method now used to produce air is a temporary furnace, built at the bottom of the shaft over which the fan is to be erected. The fan should have been up long since, from the length of time it has been ordered. The lay-out of this mine is excellent. Each heading will receive its own split of air direct from the fan.

"Allport No. 2."—When inspected, this colliery was found in reasonably good condition. A new opening has been made at a low point on the property, which serves a double purpose, it gives drainage for the mine and an additional current of air, both of which add to the sanitary condition of the working.

"Juniata."—An electric plant has been erected at this mine, from

which power is to be obtained for running mining machines. The ventilation is at present produced by a furnace, which gives satisfaction, as the number of miners is small. The intention is to increase the capacity of the colliery and then replace the furnace with a fan. The drainage and ventilation, when examined last, were in first-class condition.

"Delta."—I am sorry to say that the sanitary condition of this mine, both as regards ventilation and drainage, has been rather unsatisfactory during the past year. The deficiency in the ventilation is caused by the inadequacy of the furnace to produce enough air, and, in addition, the workings are a great distance away; consequently, there is much friction to overcome. On my last examination, I found conditions somewhat improved, as a number of employes had been greatly reduced and the volume of air in circulation was sufficient to supply those remaining. The drainage has been somewhat neglected, which was caused possibly by the mine being idle so much during the past year, as I do not suppose it ran half time. I hope and expect to give a more favorable report of the sanitary condition of this mine for the year 1898, as I presume it will be run more regularly and will be looked after more closely as to ventilation and drainage.

"Cymbria."—This mine is in a favorable condition, both as regards ventilation and drainage. The quantity of air passing through the workings is from 18,000 to 23,000 cubic feet per minute—the latter quantity being measured when examined last, and it was well distributed and carried to the face of the mine. This quantity of air being in circulation where only from eighty to ninety men are employed, speaks for itself. This is one of the mines where a furnace is used to ventilate which gives satisfaction, for the reason that it is properly attended to, a brisk fire being kept up at all hours of the day.

"Alpha."—This is a small operation, employing about thirty-five persons. The ventilation, drainage and general conditions are very good.

"Lancashire No. 3."—The quantity of air in circulation at this mine, when last examined, was 18,800 cubic feet per minute, and it was well distributed in two currents around the face of the workings. All matters pertaining to the health, safety and comfort of the employes receive the most careful attention.

"Lancashire No. 6" has been partially closed down for several months, there being usually but four men employed. Consequently it has not been examined for some time.

"Lancashire No. 7."—This is a new plant, opened up during the present year, but is connected with the face of the workings of "Lancashire No. 4," which has been practically abandoned, and the coal is all taken out through "No. 7," where an electric motor is used for haul-

ing, and electric machine cutters to do the mining. On my last examination of the mine I measured 20,000 cubic feet of air in circulation, which was fairly well distributed about the face of the workings. Drainage, I found much improved.

"Sterling No. 11."—The general condition of this mine is satisfactory with but one exception, which is that the air should be split into two currents. On my last examination, I brought this subject to the attention of the foreman, and a plan was adopted by which the current would hereafter be split. I would here state that I am not very much in favor of splitting air currents in shallow mines, where but from 90 to 100 men are employed and ventilation is produced by a furnace with a shaft of 30 or 40 feet in height, a current of 10,000 to 12,000 cubic feet at the utmost being in circulation. A volume of this size generally is much better not split, as the velocity is such that after having been split it will not carry off the heavier gases and powder smoke, but leaves the mine air continuously in a misty condition, while this is not the case with one current, since the velocity is so much higher and it carries away the smoke and heavier gases at once.

"Susquehanna."—When last examined, the condition of this working was satisfactory as regards ventilation and drainage, the air being well distributed and the water kept off the hauling roads. The quantity of air in circulation was 10,200 cubic feet per minute.

"Allport."—This mine has been idle for some time, but was examined about three weeks before it shut down and found in good condition, the ventilation and drainage being carefully looked after.

"Summit."—The ventilation of this mine is up to the standard, and all matters pertaining to the health, comfort and safety of the employes are well looked after. The quantity of air in circulation, on last examination, was 17,400 cubic feet per minute.

## Carrolltown District.

"Elmora Nos. 1 and 2" are the only mines in this district, the former being on the B seam and the latter on the E seam. Both are operated by the same company. The ventilation and drainage of "No. 1" I found in a fairly good condition. In "No. 2" the drainage in the lower section of the work was somewhat defective, but the ventilation was satisfactory. Both are ventilated by furnaces.

## Spangler District.

"Sterling No. 13."—This mine was not operated nearly to its capacity during the latter part of the year. On my last examination about thirty-five men were employed. The ventilation and drainage were in fair condition.

## Patton District.

There are six mines here, shipping coal over the Beech Creek Railroad.

"Patton" mine is a small operation, located near Carrolltown. There was not much work done during the year. I examined the mine twice, and each time it was in good condition as regards ventilation, but the drainage was a little defective on my last examination, owing, I believe, to its having been idle for some time.

"Ashcroft."—The sanitary condition of this mine is fairly good, but some arrangement will have to be made for splitting the air, owing to the number of men, in order to comply with the law. The location of the furnace will be found very unfavorable for splitting the current. This is a matter that should be well considered in opening up a colliery and locating the ventilating plant.

"Columbia."—Unfortunately, the ventilating plant of this colliery is unfavorably located for splitting the air, as the fan is on the same side of the main heading as the cross heading, which necessitates the building over each cross heading of air bridges large enough to carry the whole volume over them. If the fan were set on the opposite side of the main heading, a small overcast would suffice, as it would then be necessary to carry only the one current over it. On my last inspection I measured over 30,000 cubic feet of air in circulation, and it was being fairly well carried to the face of the works. Another split is necessary in order to comply with the requirements of the law, and there is no question but that it will improve the sanitary condition of the mine.

"New Pardee."—This is the largest colliery at this point, and I am pleased to report its sanitary condition good. It is apparent, from an examination of the colliery, that everything is done in a systematic manner. All headings are driven as straight as an arrow, and are wide and roomy, giving sufficient space for drivers to pass their trips anywhere in the mine. Both main headings have a parallel airway on each side, thus making plenty of room for the air, which is divided into three splits.

"Moshannon."—When examined last, the ventilation and drainage were somewhat defective, which was caused by wet weather. The ventilation was affected by the water coming down the furnace shaft, thus checking the upcast column of air. The drainage was affected also by the large influx of water which came through the strata. Usually this mine is kept in fairly good condition.

"Flanigan Run."—Is one of the largest collieries in the local district, as many as 250 men having been employed here at one time. The ventilation was formerly produced by a furnace, but the management has now put up a seven foot Stine fan. On my last visit the fan had been erected but not started, as the steam connection had not been made. I hope to see the fan improve the ventilation of this

colliery, as a seven-foot Stine fan should deliver from 45,000 to 60,000 cubic feet of air per minute through a mine with airways such as there are here.

## Hastings District.

"Sterling No. 8" is the largest of the five mines in this local district, and employs over 200 men. The ventilation is produced by a fan twelve feet in diameter, which is inadequate, as the mine is very extensive and the air has several miles to travel before passing through the entire work. A shaft was opened two years ago at what was the extreme face of the mine at that time. This opening was utilized as an intake until about last July, since which time the connection from it to the fan has been cut off by drawing that part of the mine back and letting it fall in. The result of this is that the air now has several thousand feet farther to travel, consequently, the volume is reduced. Those in charge are working to make a new opening from another point, which will be utilized for pumping the water and shortening the route of the air. This will work a big improvement in the pumping and ventilation of the mine.

"Sterling No. 10" is a small plant and employed only about fifteen or twenty men when inspected last. The ventilation is produced by a furnace, which does the work very satisfactorily.

"Benton."—This mine is always found in very good condition as regards ventilation, drainage, etc., and the health and welfare of the employes are well looked after.

"Oak Ridge."—This colliery was idle for several months in the early part of the year, consequently it was not examined regularly. The ventilation, drainage and general conditions have always been found very satisfactory.

"Hastings Colliery."—This is quite a large mine, requiring considerable work to keep the ventilation up to the standard, as the distance the air has to travel to pass through the entire work is now becoming very great—almost too much for a furnace. For this reason those in charge contemplate putting in a fan at once, which will probably solve the difficulty, as the system of mining is favorable for the distribution of air if they have the power to produce the volume. Drainage and general condition of the colliery are good.

"Vintondale Nos. 1 and 2" are located at the terminus of the Black Lick Branch of the P. R. R. The mining, hauling and ventilating machinery is operated by electricity. The drainage, ventilation and general condition of the mine are well looked after, as they reasonably claim that the better they keep the sanitary condition of their mines the cheaper they can get the coal out.

"Big Run" is located on the same railroad branch. The mining is done here also by machinery, driven by compressed air. A Stine fan, seven feet in diameter, produces the ventilation. On my last

inspection, I found the ventilation good, but the drainage was defective, on account of the operators intending to abandon that section of the mine in a few weeks and take the coal out through a new opening.

"Lorain."—This mine is also on the Black Lick branch, and the mining is done by machinery, driven by compressed air. As the mine is new and only began to ship coal a few months ago, I have not had an opportunity to examine the inside workings.

"Nant-y-Glo," another operation on the Black Lick branch and the only one where pick mining is done, has been examined several times during the year and each time found in good sanitary condition.

## Dunlo District.

There are two collieries located at this point. Both are shafts.

"Yellow Run."—This mine is operated by the Berwind-White Coal Company. The ventilation is well looked after, and the mine in general is judiciously managed.

"Henrietta Shaft," operated by the Henrietta Coal Company. A part of the workings, are opened up on the dip of the coal from the bottom of the shaft by a slope, and levels are driven off about every 400 feet, with the rooms driven up with the rise of the coal. The other division of the mine is above the water level, from which the coal is hauled by a rope to the bottom of the shaft. The drainage and ventilation are in fair condition. To keep up the latter, however, it will require a larger fan, as the capacity of the mine is being increased beyond the power of the present one.

TABLE No. 1.—Showing Location, etc., of Collieries in the Sixth Bituminous District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Argyle, | Huff & Coulter, | Cambria, | J. P. Wilson, | South Fork. |
| Aurora, | Aurora Coal Company, | Cambria, | D. W. Luke, | South Fork. |
| A. J. Haws, | A. J. Haws & Son, | Cambria, | H. Y. Haws, | Johnstown. |
| Alpha, | Knight & Co., | Cambria, | H. C. Williams, | Barnsboro. |
| Ashcroft, | Patton Coal Company, | Cambria, | John Ashcroft, | Patton. |
| Allport No. 1, | Allport Coal Company, | Cambria, | James H. Allport, | Hastings. |
| Allport No. 2, | Allport Coal Company, | Cambria, | James H. Allport, | Hastings. |
| Ashland, | Wm. Curren & Son, | Somerset, | Wm. Curren, | Houtzdale. |
| Bear Rock, | Lealey & Laughlin, | Cambria, | John Lealey, | Lilly. |
| Bethel, | Bethel Coal Company, | Somerset, | Joseph Virgin, | Hollsopple. |
| Big Bend, | Charles McFadden, | Cambria, | N. S. Hayden, | Expedit. |
| Benton, | Benton Coal Company, | Cambria, | James Campbel, | Hastings. |
| Bell, | Herman Coal Company, | Cambria, | George Thurley, | Dysart. |
| Columbia, | Patton Coal Company, | Cambria, | John Ashcroft, | Patton. |
| Cresson, | Cresson Coal and Coke Company, | Cambria, | John K. Powell, | Cresson. |
| Columbia No. 4, | Mitchell Coal and Coke Company, | Cambria, | Wm. Smith, | Gallitzen. |
| Conemaugh, | Coulter & Huff, | Cambria, | J. P. Wilson, | South Fork. |
| Cymbria, | Cymbria Coal Company, | Cambria, | E. R. Musser, | Barnesboro. |
| Dean No. 4, | Cresson and Clearfield Coal and Coke Co., | Cambria, | P. H. Wall, | Philadelphia. |
| Dean No. 5, | Cresson and Clearfield Coal and Coke Co., | Cambria, | P. H. Wall, | Philadelphia. |
| Dean No. 8, | Cresson and Clearfield Coal and Coke Co., | Cambria, | P. H. Wall, | Philadelphia. |
| Delta, | Duncan & Spangler, | Cambria, | Richard Bowen, | Barnesboro. |
| Dysert, | D. Laughman & Co., | Cambria, | Thomas Lealey, | Lilly. |
| Elmora No. 1, | Elmora Coal Company, | Cambria, | John B. Reed, | Carrolltown. |
| Elmora No. 2, | Elmora Coal Company, | Cambria, | John B. Reed, | Carrolltown. |
| Empire, | Empire Coal Mining Company, | Cambria, | R. A. Shillingford, | Peale. |
| Euclid, | Euclid Coal and Coke Company, | Cambria, | J. H. Dietrick, | South Fork. |
| Eureka No. 30, | B. W. C. M. Co., | Somerset, | F. J. Kimball, | Scalp Level. |
| Eureka No. 31, | B. W. C. M. Co., | Somerset, | F. J. Kimball, | Scalp Level. |
| Excelsior, | George Pierce & Son, | Cambria, | George Pearce, | Puritan. |
| Flanigan Run, | Patton Coal Co., | Cambria, | John Ashcroft, | Patton. |
| Gallitzen Shaft, | Taylor & McCoy Coal & Coke Company, | Cambria, | T. E. Dipner, | Gallitzen. |
| Gallitzen Slope, | Mitchel Coal and Coke Company. | Cambria, | Wm. Smith, | Gallitzen. |
| Glen Hellen Colliery, | Taylor Bros., | Cambria, | Valentine Eichenlaub, | Arnsbury. |
| Gautier No. 3, | Cambria Iron Company, | Cambria, | W. H. Morris, | Johnstown. |
| Henrietta Shaft, | Henrietta Coal Company, | Cambria, | John McNulty, | Dunlo. |
| Hastings Colliery, | Shiffer & Smith, | Cambria, | W. C. Shiffer, | Hastings. |
| Ingleside, | Ingleside Coal Company, | Cambria, | T. C. du Pont, | Johnstown. |
| Ivy Ridge, | Lovell Coal Mining Company, | Cambria, | P. F. Campbell, | Puritan. |
| Juniata, | David Atherton, | Cambria, | Thomas Scullen, | Barnesboro. |
| Krebs, | Listie Mining and Manufacturing Co., | Somerset, | George J. Krebs, | Somerset. |
| Lancashire No. 3, | Barnes & Tucker, | Cambria, | John Barnes, | Barnesboro. |
| Lancashire No. 4, | Barnes & Tucker, | Cambria, | John Barnes, | Barnesboro. |
| Lancashire No. 6, | Barnes & Tucker, | Cambria, | John Barnes, | Barnesboro. |
| Lancashire No. 7, | Barnes & Tucker, | Cambria, | John Barnes, | Barnesboro. |
| Lilly Slope, | Lilly Coal Company, | Cambria, | C. A. Hughes, | Altoona. |

| | | | | |
|---|---|---|---|---|
| Moshannon, | McCormick & Kerr, | Cambria, | E. P. McCormick, | Patton. |
| Nant y Glo, | Dunwiddie & Heirsch, | Cambria, | J. W. Dunwiddie, | Glen Glade. |
| Oak Ridge, | Oak Ridge Coal Company, | Cambria, | James Campbell, | Hastings. |
| Oaklyn, | C. D. Loraine, | Cambria, | Ed. L. Shell, | Glen Glade. |
| Pardee No. 3, | Pardee Colliery Company, | Cambria, | W. C. Lingle, | Patton. |
| Puritan No. 1, | Puritan Coal Mining Company, | Cambria, | John Langdon, | Huntingdon. |
| Puritan No. 2, | Puritan Coal Mining Company, | Cambria, | John Langdon, | Huntingdon. |
| Plain, | E. W. Mentzer, | Cambria, | John A. Leap, | Lilly. |
| Patton, | J. J. McGonigle, | Cambria, | J. J. McGonigle, | Carrolltown. |
| Pilgrim, | Lovell Coal Mining Company, | Cambria, | P. F. Campbell, | Puritan. |
| Rolling Mill, | Cambria Iron Company, | Cambria, | W. H. Morris, | Johnstown. |
| Sterling No. 8, | Duncan & Spangler, | Cambria, | John McGonigle, | Hastings. |
| Sterling No. 10, | Duncan & Spangler, | Cambria, | James Higham, | Hastings. |
| Setrling No. 11, | Duncan & Spangler, | Cambria, | Roger Bowen, | Barnesboro. |
| Sterling No. 13, | Duncan & Spangler, | Cambria, | James Meehan, | Spangler. |
| Spangler, | Summit Coal & Coke Co., | Cambria, | Henry Redding, | Spangler. |
| Sonman No. 1, | W. H. Piper & Co., | Cambria, | Joseph Patterson, | Lilly. |
| Sonman No. 2, | W. H. Piper & Co., | Cambria, | Joseph Patterson, | Lilly. |
| Standard, | Standard Coal Company, Limited, | Cambria, | Nicholas Evans, | Lilly. |
| Stineman No. 1, | Stineman Coal and Coke Company, | Cambria, | W. I. Stineman, | South Fork. |
| Summit No. 1, | Penn Bituminous Coal Company, | Cambria, | E. D. Davis, | Portage. |
| Stony Creek, | A. F. John & Co., | Somerset, | J. W. Watkins, | Hooversville. |
| South Fork No. 1, | South Fork Coal Mining Company, | Cambria, | Joseph Campbell, | Portage. |
| Susquehanna, | Deringer Bros., | Cambria, | W. Deringer, | Spangler. |
| Sonman Shaft, | Sonman Coal Mining Company, | Cambria, | John Doyle, | Myra. |
| Vintondale No. 1, | Vintondale Colliery Company, | Cambria, | Clarence R. Claghorn, | Vintondale. |
| Vintondale No. 2, | Vintondale Colliery Company, | Cambria, | Clarence R. Claghorn, | Vintondale. |
| Webster No. 3, | John C. Scott & Sons, | Cambria, | Philip Hartman, | Ehrenfeld. |
| West Branch, | Clearfield Bituminous Coal Corporation, | Cambria, | R. A. Shillingford, | Peale. |
| Yellow Run Shaft, | B. W. C. M. Co., | Cambria, | A. S. R. Richards, | Osceola Mills. |

TABLE No. 2—Gives the total number of tons of coal mined in each Colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of pow der used, etc., in the Sixth Bituminous District, for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Argyle, | Cambria, | 94,251 | ..... | 1,200 | 299 | ..... | 351 | 159 | ..... | 1 | 898 | 150 | 1 | 14 | ..... | ..... |
| Aurora, | Cambria, | 35,290 | ..... | ..... | 30 | 35,260 | 213 | 76 | ..... | ..... | 180 | 100 | ..... | 7 | ..... | ..... |
| A. J. Haws, | Cambria, | 24,786 | ..... | 1,825 | 100 | 22,861 | 262 | 43 | ..... | ..... | 120 | 1,200 | 2 | 6 | ..... | ..... |
| Alpha, | Cambria, | 13,024 | ..... | ..... | ..... | 13,024 | 162 | 26 | ..... | ..... | 100 | 100 | ..... | 1 | ..... | ..... |
| Ashcroft, | Cambria, | 34,633 | ..... | ..... | ..... | 34,633 | 172 | 69 | ..... | ..... | 100 | ..... | ..... | 6 | ..... | ..... |
| Allport No. 1, | Cambria, | 139,949 | ..... | ..... | ..... | 139,949 | 280 | 137 | ..... | ..... | 700 | 50 | ..... | 12 | ..... | ..... |
| Allport No. 2, | Cambria, | 20,042 | ..... | ..... | ..... | 20,042 | 135 | 53 | ..... | ..... | 100 | 50 | ..... | 4 | ..... | ..... |
| Ashland, | Somerset, | 7,140 | ..... | ..... | ..... | 7,140 | 119 | 23 | ..... | ..... | 57 | 10 | ..... | 2 | ..... | ..... |
| Bear Rock, | Cambria, | 30,000 | ..... | ..... | 75 | 29,925 | 216 | 50 | ..... | ..... | 100 | 50 | ..... | 8 | ..... | ..... |
| Bethel, | Somerset, | 6,336 | ..... | 20 | 50 | 6,266 | 50 | 9 | ..... | ..... | 50 | ..... | ..... | 3 | ..... | ..... |
| Big Bend, | Cambria, | 72,895 | ..... | 1,246 | 470 | 71,179 | 234 | 104 | ..... | ..... | 600 | 500 | 3 | 12 | 1 | ..... |
| Benton, | Cambria, | 38,057 | ..... | 173 | 17 | 37,887 | 137 | 53 | ..... | ..... | 226 | ..... | ..... | 6 | ..... | ..... |
| Bell, | Cambria, | 1,600 | ..... | ..... | 30 | 1,570 | 39 | 38 | ..... | ..... | 16 | ..... | ..... | 3 | ..... | ..... |
| Columbia, | Cambria, | 113,423 | ..... | ..... | ..... | 113,423 | 259 | 220 | 1 | ..... | 400 | 50 | 1 | 8 | ..... | ..... |
| Cresson, | Cambria, | 36,823 | ..... | 371 | 1,128 | 35,324 | 119 | 76 | ..... | 1 | 178 | ..... | 3 | 5 | ..... | ..... |
| Columbia No. 4, | Cambria, | 32,982 | ..... | ..... | 250 | 32,732 | 173 | 60 | ..... | ..... | 156 | ..... | ..... | 8 | ..... | ..... |
| Conemaugh, | Cambria, | 45,576 | ..... | 1,000 | 6,257 | ..... | 351 | 59 | ..... | ..... | 434 | ..... | 1 | 5 | ..... | ..... |
| Cymbria, | Cambria, | 68,848 | ..... | 137 | 130 | 68,581 | 221 | 102 | ..... | ..... | 437 | ..... | ..... | 9 | ..... | ..... |
| Dean No. 4, | Cambria, | 37,705 | 4,900 | 200 | 5,000 | 27,605 | 255 | 51 | ..... | ..... | 250 | ..... | ..... | 8 | 1 | 88 |
| Dean No. 5, | Cambria, | 49,909 | ..... | ..... | 200 | 49,709 | 242 | 60 | ..... | ..... | 350 | ..... | ..... | 9 | ..... | ..... |
| Dean No. 8, | Cambria, | 119,982 | ..... | 600 | ..... | 119,382 | 257 | 126 | ..... | ..... | 600 | 300 | 2 | 10 | ..... | ..... |
| Delta, | Cambria, | 40,400 | ..... | ..... | ..... | 40,400 | 93 | 72 | 1 | ..... | 125 | ..... | ..... | 6 | ..... | ..... |
| Dysart, | Cambria, | 81,035 | ..... | 600 | 1,173 | 79,262 | 200 | 160 | ..... | ..... | 524 | 50 | 2 | 16 | 1 | ..... |
| Elmora No. 1, | Cambria, | 44,464 | ..... | ..... | 150 | 44,314 | 112 | 129 | ..... | ..... | 200 | ..... | ..... | 9 | ..... | ..... |
| Elmora No. 2, | Cambria, | 24,090 | ..... | ..... | 50 | 24,040 | 67 | 94 | ..... | ..... | 100 | ..... | ..... | 9 | ..... | ..... |
| Empire, | Cambria, | 29,548 | ..... | 261 | ..... | 29,287 | 119 | 116 | ..... | ..... | 305 | ..... | 2 | 5 | ..... | ..... |
| Euclid, | Cambria, | 33,165 | ..... | 235 | 470 | 32,460 | 235 | 57 | ..... | ..... | 180 | ..... | 1 | 6 | ..... | ..... |
| Eureka No. 30, | Somerset, | 43,098 | ..... | 526 | ..... | 42,572 | 94 | 200 | ..... | ..... | 150 | ..... | 3 | ..... | 2 | ..... |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eureka No. 31, | Somerset, | 7,549 | ..... | 56 | ..... | 7,493 | 48 | 120 | ..... | ..... | 25 | ..... | 1 | ..... | 2 | ..... |
| Excelsior, | Cambria, | 16,027 | ..... | 40 | ..... | 15,985 | 116 | 54 | ..... | ..... | 75 | ..... | 1 | 7 | ..... | ..... |
| Flanigan Run, | Cambria, | 155,879 | ..... | ..... | 500 | 155,379 | 275 | 225 | 1 | 1 | 300 | 50 | ..... | 12 | ..... | ..... |
| Gallitzen Shaft, | Cambria, | 97,607 | 41,309 | 1,170 | 1,193 | 31,434 | 189 | 237 | 1 | ..... | 495 | ..... | 8 | 14 | ..... | 240 |
| Gallitzen Slope, | Cambria, | 200,589 | 67,484 | 5,117 | 2,562 | 88,276 | 223 | 351 | ..... | 2 | 1,066 | ..... | 5 | 30 | 1 | 172 |
| Glen Hellen Colliery, | Cambria, | 37,984 | ..... | 442 | 192 | 37,350 | 150 | 84 | ..... | ..... | 330 | ..... | 3 | 5 | ..... | 20 |
| Gautier No. 3, | Cambria, | 11,004 | ..... | 15 | ..... | 10,989 | 55 | 50 | ..... | 1 | 81 | ..... | 1 | 3 | ..... | ..... |
| Henrietta Shaft, | Cambria, | 219,434 | ..... | 2,486 | 604 | 216,344 | 282 | 350 | ..... | ..... | 600 | 100 | 4 | 25 | ..... | ..... |
| Hastings, | Cambria, | 124,369 | 47,822 | 900 | 1,060 | 45,892 | 243 | 239 | 1 | 2 | 714 | 500 | 2 | 20 | ..... | 152 |
| Ingleside, | Somerset, | 19,112 | ..... | 160 | 17 | 18,935 | 159 | 24 | ..... | ..... | 115 | 12 | 1 | 4 | ..... | ..... |
| Ivy Ridge, | Cambria, | 14,791 | ..... | ..... | ..... | 14,791 | 57 | 70 | ..... | ..... | 40 | ..... | ..... | 5 | ..... | ..... |
| Juniata, | Cambria, | 24,784 | ..... | ..... | 250 | 24,534 | 180 | 53 | ..... | ..... | 225 | 200 | 1 | 4 | ..... | ..... |
| Krebs, | Somerset, | 119,410 | ..... | 560 | 900 | 118,010 | 200 | 128 | ..... | ..... | 936 | ..... | ..... | 15 | ..... | ..... |
| Lancashire No. 3, | Cambria, | 47,155 | ..... | 145 | ..... | 47,010 | 170 | 45 | ..... | ..... | 202 | ..... | 1 | 6 | ..... | ..... |
| Lancashire No. 4, | Cambria, | 5,693 | ..... | ..... | 517 | 5,176 | 30 | 21 | ..... | ..... | 20 | ..... | ..... | 2 | ..... | ..... |
| Lancashire No. 6, | Cambria, | 36,589 | ..... | ..... | 160 | 36,429 | 108 | 80 | ..... | ..... | 170 | ..... | ..... | 6 | ..... | ..... |
| Lancashire No. 7, | Cambria, | 34,487 | ..... | 23 | ..... | 34,464 | 100 | 107 | ..... | ..... | 165 | 2,000 | 1 | 6 | 1 | ..... |
| Lilly Slope, | Cambria, | 30,438 | ..... | 192 | 332 | 29,914 | 134 | 54 | ..... | ..... | 40 | 50 | 1 | 7 | ..... | ..... |
| Moshannon, | Cambria, | 52,890 | ..... | ..... | ..... | 52,890 | 185 | 82 | ..... | ..... | 210 | ..... | ..... | 6 | ..... | ..... |
| Nant y Glo, | Cambria, | 31,767 | ..... | 420 | ..... | 31,347 | 249 | 60 | ..... | ..... | 285 | 43 | ..... | 7 | ..... | ..... |
| Oak Ridge, | Cambria, | 13,543 | ..... | ..... | 329 | 13,214 | 114 | 26 | ..... | ..... | 70 | ..... | ..... | 4 | ..... | ..... |
| Oaklyn, | Cambria, | 3,000 | ..... | 75 | 30 | 2,895 | 27 | 35 | ..... | ..... | 25 | ..... | 2 | 2 | ..... | ..... |
| Pardee No. 3, | Cambria, | 287,590 | ..... | 490 | 1,505 | 286,575 | 245 | 349 | ..... | ..... | 1,100 | 200 | 2 | 31 | ..... | ..... |
| Puritan No. 1, | Cambria, | 123,201 | ..... | 1,200 | 200 | 121,801 | 225 | 181 | ..... | ..... | 639 | ..... | 4 | 12 | 1 | ..... |
| Puritan No. 2, | Cambria, | 62,352 | ..... | ..... | ..... | 62,352 | 227 | 93 | ..... | 1 | 312 | ..... | ..... | 7 | ..... | ..... |
| Plain, | Cambria, | 46,570 | ..... | ..... | 200 | 46,370 | 155 | 102 | ..... | ..... | 380 | ..... | ..... | 13 | ..... | ..... |
| Patton, | Cambria, | 9,376 | ..... | ..... | 20 | 9,356 | 131 | 25 | ..... | ..... | 113 | ..... | ..... | 3 | ..... | ..... |
| Pilgrim, | Cambria, | 33,724 | ..... | 498 | ..... | 33,226 | 129 | 75 | ..... | 1 | 75 | ..... | 2 | 7 | 1 | ..... |
| Rolling Mill, | Cambria, | 361,146 | ..... | 3,365 | ..... | 357,781 | 284 | 294 | ..... | 4 | 1,848 | 400 | 6 | 76 | ..... | ..... |
| Sterling No. 8, | Cambria, | 100,720 | ..... | 1,920 | 820 | 97,980 | 260 | 309 | 1 | ..... | 1,000 | ..... | 5 | 30 | ..... | ..... |
| Sterling No. 10, | Cambria, | 10,179 | ..... | ..... | ..... | 10,179 | 203 | 21 | ..... | ..... | 50 | ..... | ..... | 2 | ..... | ..... |
| Sterling No. 11, | Cambria, | 99,800 | ..... | ..... | ..... | 99,800 | 199 | 160 | ..... | 1 | 763 | ..... | 2 | 16 | ..... | ..... |
| Sterling No. 13, | Cambria, | 27,572 | ..... | ..... | ..... | 27,572 | 110 | 46 | ..... | ..... | 83 | ..... | ..... | 4 | ..... | ..... |
| Spangler, | Cambria, | 33,396 | ..... | ..... | 1,050 | 32,346 | 133 | 59 | ..... | ..... | 150 | ..... | ..... | 3 | ..... | ..... |
| Sonman No. 1, | Cambria, | 94,025 | ..... | 960 | 360 | 92,885 | 155 | 138 | ..... | 1 | 356 | ..... | 2 | 14 | ..... | ..... |
| Sonman No. 2, | Cambria, | 95,379 | ..... | ..... | 1,200 | 94,179 | 155 | 147 | ..... | ..... | 354 | ..... | 1 | 18 | ..... | ..... |
| Standard, | Cambria, | 30,522 | ..... | ..... | ..... | 30,522 | 250 | 40 | ..... | ..... | 20 | ..... | ..... | 3 | ..... | ..... |
| Stineman No. 1, | Cambria, | 262,094 | ..... | 4,392 | ..... | 257,702 | 282 | 312 | ..... | ..... | 800 | ..... | 3 | 31 | ..... | ..... |
| Summit No. 1, | Cambria, | 11,605 | ..... | ..... | ..... | 11,605 | 200 | 35 | 1 | ..... | 40 | ..... | 1 | 4 | ..... | ..... |
| Stony Creek, | Somerset, | 32,500 | ..... | ..... | ..... | 32,500 | 181 | 52 | ..... | ..... | 51 | ..... | ..... | 5 | ..... | ..... |
| South Fork No. 1, | Cambria, | 85,552 | ..... | 2,300 | 160 | 83,092 | 250 | 145 | ..... | ..... | 200 | ..... | 4 | 9 | ..... | ..... |
| Susquehanna, | Cambria, | 35,000 | ..... | ..... | ..... | 35,000 | 200 | 81 | ..... | 1 | 200 | ..... | ..... | 2 | ..... | ..... |
| Sonman Shaft, | Cambria, | 179,039 | ..... | 4,397 | 126 | 174,516 | 244 | 266 | ..... | ..... | 500 | 350 | 4 | 21 | ..... | ..... |
| Vintondale No. 1, | Cambria, | 105,968 | 79,044 | 600 | 314 | 105,054 | 203 | 112 | ..... | ..... | 801 | ..... | 3 | 4 | 4 | ..... |
| Vintondale No. 2, | Cambria, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Webster No. 3, | Cambria, | 387,102 | ..... | 5,717 | 2,959 | 378,426 | 274 | 448 | ..... | 2 | 1,926 | 600 | 6 | 34 | ..... | ..... |
| West Branch, | Cambria, | 118,076 | ..... | 644 | ..... | 117,432 | 236 | 184 | ..... | ..... | 695 | ..... | 2 | 10 | ..... | ..... |
| Yellow Run Shaft, | Cambria, | 245,791 | ..... | 7,501 | ..... | 238,290 | 294 | 275 | 1 | 1 | 1,018 | ..... | 5 | 42 | ..... | ..... |
| Total, | | 5,501,611 | 240,559 | 53,099 | 33,439 | 5,034,119 | 13,617 | 8,966 | 8 | 20 | 27,199 | 7,115 | 105 | 768 | 15 | 672 |

TABLE No. 3—Showing the number of each class of Employes at ea ch Colliery in the Sixth Bituminous District during the year 1897.

| Names of Collieries. | Occupation of Persons Employed Inside. | | | | | | | | Occupation of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Argyle, | 1 | ..... | 134 | 2 | 8 | ..... | ..... | 145 | 1 | 2 | 2 | ..... | 8 | 1 | 14 | 159 |
| Aurora, | 1 | ..... | 65 | ..... | 6 | ..... | ..... | 72 | ..... | 1 | ..... | ..... | 2 | 1 | 4 | 76 |
| A. J. Haws, | 1 | ..... | 24 | 2 | 4 | ..... | ..... | 31 | ..... | ..... | 2 | ..... | 8 | 2 | 12 | 43 |
| Alpha, | 1 | ..... | 21 | ..... | 1 | 1 | 1 | 25 | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 26 |
| Ashcroft, | 1 | ..... | 50 | ..... | 4 | 4 | 7 | 66 | 1 | 1 | ..... | ..... | 1 | ..... | 3 | 69 |
| Allport No. 1, | 1 | ..... | 125 | ..... | 3 | 1 | 1 | 131 | 1 | 1 | ..... | 1 | 1 | 2 | 6 | 137 |
| Allport No. 2, | 1 | ..... | 45 | 1 | 2 | 1 | 1 | 51 | ..... | 1 | ..... | ..... | ..... | 1 | 2 | 53 |
| Ashland, | 1 | ..... | 20 | ..... | 1 | ..... | ..... | 22 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 23 |
| Bear Rock, | 1 | ..... | 40 | ..... | 5 | ..... | 3 | 49 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 50 |
| Bethel, | 1 | ..... | 6 | ..... | 1 | ..... | ..... | 8 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 9 |
| Big Bend, | 1 | ..... | 78 | 2 | 4 | 2 | ..... | 87 | 1 | 3 | 3 | 1 | 7 | 2 | 17 | 104 |
| Benton, | 1 | ..... | 45 | 1 | 2 | 1 | ..... | 50 | ..... | 1 | ..... | ..... | 1 | 1 | 3 | 53 |
| Bell, | 1 | ..... | 30 | 1 | 3 | ..... | ..... | 35 | ..... | 1 | ..... | ..... | ..... | 2 | 3 | 38 |
| Columbia, | 1 | ..... | 200 | 7 | 6 | ..... | ..... | 214 | 1 | 1 | 1 | ..... | 3 | ..... | 6 | 220 |
| Cresson, | 1 | ..... | 61 | ..... | 4 | ..... | 2 | 68 | ..... | 1 | 3 | ..... | 2 | 2 | 8 | 76 |
| Columbia No. 4, | 1 | ..... | 47 | ..... | 4 | 3 | 1 | 56 | ..... | 1 | ..... | ..... | 2 | 1 | 4 | 60 |
| Conemaugh, | 1 | ..... | 48 | 1 | 5 | ..... | ..... | 55 | 1 | 1 | 1 | ..... | ..... | 1 | 4 | 59 |
| Cymbria, | 1 | ..... | 90 | ..... | 4 | 2 | ..... | 97 | ..... | 1 | ..... | ..... | 3 | 1 | 5 | 102 |
| Dean No. 4, | 1 | ..... | 40 | ..... | 4 | 1 | 1 | 47 | ..... | 1 | 1 | ..... | 2 | ..... | 4 | 51 |
| Dean No. 5, | 1 | ..... | 50 | ..... | 4 | 1 | 1 | 57 | 1 | 1 | ..... | ..... | 1 | ..... | 3 | 60 |
| Dean No. 8, | 1 | ..... | 100 | ..... | 8 | 4 | 4 | 117 | 1 | 1 | 1 | 1 | 3 | 2 | 9 | 126 |
| Delta, | 1 | ..... | 60 | 1 | 5 | 2 | ..... | 69 | ..... | 1 | ..... | 1 | 1 | ..... | 3 | 72 |
| Dysart, | 1 | ..... | 125 | ..... | 12 | 4 | 6 | 148 | 1 | 2 | 1 | ..... | 6 | 2 | 12 | 160 |
| Elmora No. 1, | 1 | ..... | 115 | ..... | 6 | 1 | ..... | 123 | ..... | 1 | ..... | ..... | 4 | 1 | 6 | 129 |
| Elmora No. 2, | 1 | ..... | 80 | ..... | 6 | 1 | ..... | 88 | ..... | 1 | ..... | ..... | 4 | 1 | 6 | 94 |
| Empire, | 1 | ..... | 82 | ..... | 5 | ..... | 22 | 110 | ..... | 1 | 1 | 3 | ..... | 1 | 6 | 116 |
| Euclid, | 1 | ..... | 35 | 10 | 5 | ..... | 2 | 53 | ..... | 1 | ..... | ..... | 2 | 1 | 4 | 57 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eureka No. 30, | 1 | | 120 | | 6 | 6 | 24 | 157 | 1 | 3 | 6 | 4 | 26 | 3 | 43 | 200 |
| Eureka No. 31, | 1 | | 55 | | 5 | 6 | 11 | 78 | | 2 | 2 | 2 | 33 | 3 | 42 | 120 |
| Excelsior, | 1 | | 44 | | 4 | | 1 | 50 | | 1 | 1 | | 1 | 1 | 4 | 54 |
| Flanigan Run, | 1 | | 210 | | 5 | 4 | | 220 | 1 | 1 | | | 3 | | 5 | 225 |
| Gallitzen Shaft, | 1 | | 170 | | 16 | 8 | | 195 | 1 | 3 | 3 | | 32 | 3 | 42 | 237 |
| Gallitzen Slope, | 1 | | 228 | | 13 | 10 | 24 | 276 | 1 | 4 | 3 | | 65 | 2 | 75 | 351 |
| Glen Hellen Colliery, | 1 | | 65 | 2 | 5 | 1 | 1 | 75 | | | 3 | | 3 | 3 | 9 | 84 |
| Gautier No. 3, | 1 | | 38 | 4 | 2 | 1 | | 46 | | 1 | | | 2 | 1 | 4 | 50 |
| Henrietta Shaft, | 1 | | 300 | | 20 | 4 | 11 | 336 | | 2 | 3 | 1 | 7 | 1 | 14 | 350 |
| Hastings, | 1 | | 159 | | 8 | 5 | 3 | 176 | | 2 | 2 | | 58 | 1 | 63 | 239 |
| Ingleside, | 1 | | 19 | | 1 | | | 21 | | 1 | | | 2 | | 3 | 24 |
| Ivy Ridge, | 1 | | 54 | | 5 | 3 | 1 | 64 | | 1 | | | 3 | 2 | 6 | 70 |
| Juniata, | 1 | | 47 | | 2 | | | 50 | | 1 | | 1 | | 1 | 3 | 53 |
| Krebs, | 1 | | 100 | 4 | 9 | 2 | 3 | 119 | 1 | 1 | | | 4 | 3 | 9 | 128 |
| Lancashire No. 3, | 1 | | 35 | | 2 | 1 | 3 | 42 | | | 1 | | 1 | 1 | 2 | 45 |
| Lancashire No. 4, | 1 | | 17 | | 1 | | 1 | 20 | | | | | 1 | | 1 | 21 |
| Lancashire No. 6, | 1 | | 72 | | 3 | 1 | 1 | 78 | | 1 | | | 1 | | 2 | 80 |
| Lancashire No. 7, | 1 | | 86 | | 3 | 1 | 9 | 100 | | 1 | 2 | 1 | 1 | 2 | 7 | 107 |
| Lilly Slope, | 1 | | 46 | | 3 | | | 50 | | 1 | 1 | | 2 | | 4 | 54 |
| Moshannon, | 1 | | 66 | | 3 | 2 | 5 | 77 | | 1 | | | 2 | 2 | 5 | 82 |
| Nant y Glo, | 1 | | 50 | 1 | 5 | | | 57 | | 1 | | 1 | | 1 | 3 | 60 |
| Oak Ridge, | 1 | | 20 | | 2 | 1 | 1 | 25 | | | | | | 1 | 1 | 26 |
| Oaklyn, | 1 | | 23 | | 2 | | 5 | 31 | | | 2 | 1 | 1 | | 4 | 35 |
| Pardee No. 3, | 1 | | 298 | | 17 | 15 | 2 | 333 | | 2 | 2 | | 10 | 2 | 16 | 349 |
| Puritan No. 1, | 1 | | 122 | 23 | 11 | 1 | 10 | 168 | | 2 | 2 | | 8 | 1 | 13 | 181 |
| Puritan No. 2, | 1 | | 80 | | 6 | 1 | 1 | 89 | | 1 | | | 2 | 1 | 4 | 93 |
| Plain, | 1 | | 75 | 2 | 12 | 3 | 3 | 96 | 1 | 1 | | | 3 | 1 | 6 | 102 |
| Patton, | 1 | | 20 | | 2 | | | 23 | 1 | | | | 1 | | 2 | 25 |
| Pilgrim, | 1 | | 52 | | 7 | 4 | 2 | 66 | | 1 | 2 | | 4 | 2 | 9 | 75 |
| Rolling Mill, | 2 | 2 | 248 | 32 | 36 | 11 | 25 | 356 | 1 | 6 | 7 | | 20 | 4 | 38 | 394 |
| Sterling No. 8, | 1 | | 274 | 4 | 6 | 6 | 2 | 293 | | 3 | 4 | 1 | 6 | 2 | 16 | 309 |
| Sterling No. 10, | 1 | | 18 | | 1 | | | 20 | | | | | 1 | | 1 | 21 |
| Sterling No. 11, | 1 | | 125 | 7 | 5 | 3 | 11 | 152 | | 1 | 2 | 2 | 3 | | 8 | 160 |
| Sterling No. 13, | 1 | | 38 | | 2 | 1 | 1 | 43 | | 1 | | 1 | 1 | | 3 | 46 |
| Spangler, | 1 | | 47 | | 3 | 1 | 2 | 54 | | 1 | | 1 | 2 | 1 | 5 | 59 |
| Sonman No. 1, | 1 | | 106 | | 15 | 3 | 5 | 130 | | 1 | 2 | | 4 | 1 | 8 | 138 |
| Sonman No. 2, | 1 | | 116 | | 16 | 1 | 5 | 139 | | 2 | 1 | | 3 | 2 | 8 | 147 |
| Standard, | 1 | | 34 | | 2 | 1 | 1 | 39 | | | | | | 1 | 1 | 40 |
| Stineman No. 1, | 2 | | 257 | | 25 | | 7 | 291 | 1 | 2 | 5 | | 10 | 3 | 21 | 312 |
| Summit No. 1, | 1 | | 25 | | 2 | | 3 | 31 | 1 | | 1 | | | 2 | 4 | 35 |
| Stony Creek, | 1 | | 45 | | 4 | | | 50 | | | | | | 2 | 2 | 52 |
| South Fork No. 1, | 1 | | 108 | | 9 | | 15 | 133 | 1 | 2 | 1 | | 8 | | 12 | 145 |
| Susquehanna, | 1 | | 75 | | 2 | | 2 | 80 | | | | | | 1 | 1 | 81 |
| Sonman Shaft, | 2 | | 230 | | 15 | | 1 | 248 | 1 | 2 | 3 | 1 | 10 | 1 | 18 | 266 |
| Vintondale No. 1, | 2 | | 67 | 10 | 11 | | 3 | 93 | | 3 | 4 | | 9 | 3 | 19 | 112 |
| Vintondale No. 2, | | | | | | | | | | | | | | | | |
| Webster No. 3, | 2 | | 366 | | 31 | 4 | 15 | 418 | | 5 | 7 | 1 | 15 | 2 | 30 | 448 |
| West Branch, | 1 | | 137 | | 6 | | 32 | 176 | | 2 | 1 | | 4 | 1 | 8 | 184 |
| Yellow Run Shaft, | 2 | | 226 | 3 | 17 | 7 | 10 | 265 | | 2 | 4 | | 2 | 2 | 10 | 275 |
| Total, | 81 | 2 | 7,029 | 120 | 510 | 147 | 314 | 8,203 | 21 | 94 | 93 | 25 | 436 | 94 | 763 | 8,966 |

TABLE No. 4—List of Fatal Accidents that occurred in and about the Mines of the Sixth Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Feb. 12. | Stephen Reffner, | Miner, | 40 | M. | 2 | Hastings, | Hastings, | Fractured skull and collar bone broken; caused by a fall of coal. |
| 27. | George Carlin, | Miner, | 19 | S. | .... | Gallitzen Shaft, | Gallitzen, | Head crushed by a fall of coal. |
| June 14. | Joe Lipko, | Miner, | 24 | .... | .... | Yellow Run, | Dunlo, | Killed by a fall of coal. |
| Aug. 30. | John Monka, | Miner, | 28 | M. | 1 | Delta, | Barnesboro, | Struck on the head by a fall of coal and instantly killed. |
| Nov. 6. | Joseph Sall, | Miner, | 30 | M. | 2 | Sterling No. 8, | Hastings, | Killed by a fall of rock. |
| 16. | John Denntz, | Driver, | 30 | M. | 2 | Flanigan Run, | Patton, | Squeezed between car and roof; he was sent to the Johnstown Hospital and died in three weeks. |
| Dec. 7. | John Tilkey, | Miner, | 33 | S. | .... | Columbia, | Patton, | Head crushed by a fall of coal. |
| 18. | Nick Myers, | Miner, | 26 | M. | .... | Sumner No. 1, | Puritan, | Fatally injured by a fall of coal while undermining. |

TABLE No. 5—List of Non-Fatal Accidents that occurred in and ab out the Mines of the Sixth Bituminous District, for the year ending Dece mber 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Jan. 22, | John Parkes, | Miner, | 21 | S. | Rolling Mill, | Johnstown, | Leg broken by a fall of rock. |
| Feb 23, | Andy McDonald, | Miner, | 40 | M. | Puritan No. 2, | Puritan, | Chest crushed by a fall of coal. |
| April 19, | Henry C. Morgan, | Driver, | 45 | M. | Rolling Mill, | Johnstown, | Was caught between the car and the corner of a pillar and seriously injured. |
| 23, | Andy Horwath, | Miner, | 25 | M. | Rolling Mill, | Johnstown, | Leg broken by a fall of coal. |
| 23, | Andy Pochwatello, | Miner, | 30 | M. | Flanigan Run, | Patton, | Collar bone broken by a fall of coal. |
| July 3, | John Sultani, | Miner, | 30 | .... | Rolling Mill, | Johnstown, | Shoulder fractured by a fall of coal. |
| 12, | Errick Broberg, | Miner, | 30 | .... | Hastings Colliery, | Hastings, | Ankle very badly crushed by a fall of rock. |
| Aug. 7, | Thomas McCamely, | Driver, | 25 | S. | Pilgrim, | Puritan, | Fractured ankle; was caught between two cars. |
| Sept. 14, | John Stouberg, | Miner, | 24 | M. | Hastings Colliery, | Hastings, | Collar bone broken by a fall of coal. |
| Oct. 2, | George Redman, | Miner, | 60 | .... | Gautier No. 3, | Johnstown, | Wrist broken by being caught between a car and a prop. |
| 17, | E. P. Yates, | Miner, | 19 | S. | Yellow Run Shaft, | Dunlo, | Small bone in his leg broken. |
| 24, | Flaus Larson, | Electric motor brakeman. | .... | .... | Gallitzen Slope, | Gallitzen, | Was caught between the motor and cars and his leg was broken. |
| 24, | Vasco Garnich, | Electric machine runner. | .... | .... | Gallitzen Slope, | Gallitzen, | Crushed by a fall of roof; not seriously injured. |
| 26, | Frederick Gall, | Driver, | 25 | S. | Argyle, | South Fork, | Leg broken by having been caught between mine wagon and rib. |
| Nov. 19, | Charles Sigg, | Driver, | 15 | .... | Webster No. 3, | Erenfeld, | Struck by hauling rope; his leg was broken. |
| 22, | Charles Wilson, | Laborer, | 45 | M. | Sonman Shaft, | Benscreek, | Hip bone broken by falling from the tipple to the railroad. |
| 30, | Joseph Roskey, | Miner, | 13 | S. | Sonman No. 1, | Benscreek, | Badly burned on face and hand; while making a cartridge with his lamp on his head a spark fell into the powder, igniting it. |
| Dec. 4, | Frank Dempka, | Slate picker, | 27 | .... | Sterling No. 11, | Barnesboro, | Lost two fingers; was caught between the bumpers of cars. |
| 8, | John May, | Miner, | 24 | .... | Cresson Shaft, | Cresson, | Bone of right leg broken by a fall of coal. |
| 13, | Vasco Garnich, | Elec. Mch. runner, | .... | .... | Gallitzen Slope, | Cresson, | Was hurt by a fall of roof. |
| 27, | Martin Francok, | Miner, | 39 | M. | Webster No. 3, | Cresson, | Leg broken above the ankle; struck by hauling rope. |

# SEVENTH BITUMINOUS DISTRICT.

ALLEGHENY AND WASHINGTON COUNTIES.

Idlewood, Pa., February 14, 1898.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: In compliance with the requirements of the Bituminous Mining Act, approved May 15, 1893, I herewith submit my annual report of the inspection of the mines of the Seventh bituminous district for the year ending December 31, 1897.

I am glad to be able to report that the mines in this district are, with but few exceptions, in reasonably good condition, both as regards ventilation and other matters relative to health and safety. At several mines where I had good reason to complain of the ventilation being inadequate, new ventilating fans have been provided and the quantity of air increased, to conform with legal and sanitary requirements.

The number of lives lost in and about the mines of this district during the year was 22, and the number of persons injured, 58. The most prolific cause of the accidents—both fatal and non-fatal—was from falls of slate and roof. Eighteen fatal and 31 non-fatal accidents being due to this cause. A description of each fatality is given in another part of the report. Any comments I might make in this connection would be only a repetition of what has been said in previous reports, and I will only add that the number of deaths and personal injuries are not excessive, when taking into consideration the dangerous roof conditions attending the mining of coal in this district; also, the very large number of unskilled miners employed, who are not competent to detect or to protect themselves from the dangers incident to mining; in fact, it is surprising to me and many others who are familar with the prevailing conditions, that the number of accidents are not more numerous. Notwithstanding the fact that nearly 60 per cent. of the mines in this district generate explosive gas, there was no fatal and only four non-fatal accidents due to explosions of gas, which speaks volumes in favor of the constant vigilance displayed by the mine officials.

On account of a dispute between the miners and operators about the price of mining, a strike was declared by the miners on July 4, which lasted until about September 10; during this period, operations at most of the mines in the district were entirely suspended. In view of the fact that the miners and their families had been in a deplorable condition financially for several years past, the strike was fully expected for some time before its occurrence, and it could hardly be expected that the men would consent to see their families living perpetually in a state bordering on semi-starvation without raising a protest and participating in a struggle to better their condition. The usual methods adopted by the statistician of computing the amount of wages the laborers would have earned had they continued at work instead of going on strike, as a dead loss financially, will hardly apply in this case, for their earnings were barely sufficient to keep the wolf from the door, and through public sympathy their wants were supplied during the strike about as well, if not better, than they would have been had they continued working under the old conditions. Neither is it very probable that any considerable number of the operators suffered any great financial loss as a result of the suspension, for it is well known that the market price of their commodity was such that it was becoming a serious problem as to whether it would not be better to allow the coal to remain in the ground rather than mine and dispose of it without profit, and it is altogether probable that those engaged in the mining business suffered less financially than did the outside parties who were deprived of employment and the profit from their business on account of the regular coal supply being suspended.

As a result of the general suspension, during a period of more than two months in the busiest season, we would naturally expect a large falling off in the total annual production, but the decrease is not as great as might have been expected, for, after the resumption of operations, railroad cars were rushed forward in sufficient number to keep the majority of the mines in full operation until the close of lake navigation, and the total production is only 624,450 tons less than that of the previous year, and were it not for the fact that several large mines were closed down throughout the entire year, the production would not have been far short of that for the year 1896.

| | |
|---|---|
| Number of tons, run of mine, of coal mined, | 5,000,375 |
| Number of tons of coke produced, | 4,500 |
| Number of mines in district, | 72 |
| Number of employes inside, | 9,119 |
| Number of employes outside, | 814 |
| Total number of employes, | 9,933 |
| Number of persons killed in and about the mines, | 22 |
| Number of non-fatal injuries, | 58 |

Number of wives made widows by above fatalities, ..... 13
Number of orphans from same cause, ..... 28
Number of tons of coal produced per life lost, ..... 227,290
Number of tons of coal produced per person injured, ... 86,213
Number of persons employed per life lost, ..... 451
Number of persons employed per non-fatal injury, ..... 171
Number of horses and mules in use, ..... 667
Number of steam boilers in use, ..... 150

| Cause of Accidents. | Fatal. | Non-fatal. | Widows. | Orphans. |
|---|---|---|---|---|
| By falls of slate and roof, | 18 | 31 | 10 | 23 |
| By falls of coal, | 2 | 8 | 1 | ..... |
| By coal flying from a shot, | ..... | 1 | ..... | ..... |
| By mine cars, | 1 | 6 | 1 | 3 |
| By explosions of gas, | ..... | 4 | ..... | ..... |
| By explosions of steam boiler, | ..... | 2 | ..... | ..... |
| From miscellaneous causes, | 1 | 6 | 1 | 2 |
| Total, | 22 | 58 | 13 | 28 |

The usual tabulated forms are contained in this report. I have also given a brief description of the general condition of each mine, with the improvements made at the mines during the year.

All of which is respectfully submitted,

Yours respectfully,
JAMES BLICK,
Inspector.

## New Mines Opened and General Improvements Made at the Mines in the Seventh Bituminous District During the Year 1897.

Vulcan.—Is a new mine opened by the Vulcan Coal Company. A main hauling slope has been driven to the coal seam and the main and several cross entries have been advanced several hundred feet into the coal field. A substantial steel tipple has been built and the mine equipped with an electric mining plant. A 13½-foot single inlet Capell fan has been provided to produce ventilation. This fan was tested up to a speed of 227 revolutions per minute. Quantity of air produced, 218,000 cubic feet per minute. W. G., 4 inches.

At the Hastings slope mine a 10-foot Brazil fan has been provided to produce ventilation.

A ventilating fan of the Guibal type, 20 feet in diameter, has been erected at the Essen No. 2 mine.

At the Essen No. 3 mine, a 10-foot double inlet Capell fan has been erected. A test of this fan was made several weeks since, with the following result: Speed of fan, 340 revolutions per minute; quantity of air produced, 109,000 cubic feet per minute; W. G., 8 inches. The

above figures speak well for the fan; it also shows that the mine airways are in a very cramped condition.

At the Champion mine, an 11-foot single inlet Capell fan has been erected.

## DESCRIPTION OF MINES.

### Mines on the Monongahela River.

Bellwood.—Both double and single entry systems of working are in vogue at this mine. The coal is mined by hand labor, ventilation produced by furnace power and the hauling is done by animal power. At the time of my last visit, the condition of the workings was reasonably good, excepting that the air current was rather sluggish in two of the butt entries. Quantity of air passing at the outlets, 24,000 cubic feet per minute, and the air currents measured near the face of the several butt entries, varied from 3,000 to 9,000 cubic feet per minute.

Calhoun.—Was in good condition when last inspected. Quantity of air passing at outlet, 10,000 cubic feet per minute. There were but nine men employed inside.

Street's Run.—The general condition of this mine was also satisfactory when last examined. Quantity of air passing near the face of the workings, about 4,000 cubic feet per minute in each butt entry, and 12,800 cubic feet was passing at the furnace upcast shaft. The coal is mined by hand labor and hauled from the mine by animal power.

Hay's Street Run Nos. 2 and 3.—When last inspected, I observed that some of the ventilating doors were left standing open longer than was necessary, by the drivers. Some of the room pillars were not cut through at the proper distance, and two of the entries were being driven beyond the legal distance, in advance of the air current. All other conditions were satisfactory. Quantity of air measured near the face of the workings varied from 4,000 to 12,000 cubic feet in the different butt entries, and 60,000 cubic feet per minute was passing at the furnace outlet. The mine is worked on the double entry system. The coal is mined by hand labor and it is hauled from the mine by animal power.

Walton.—This mine is worked on the double entry system. The coal is mined by hand labor. Haulage is done by the head and tail rope method. Ventilation is produced by a 12-foot fan of the Guibal type. When last visit was made I noticed that in one or two of the butt entries, in No. 1 section, the ventilation was sluggish and in No. 2 section there were too many men working in the same air current. All other conditions were favorable. Quantity of air passing in the different entries varied from 3,000 to 15,000 cubic feet per minute, and 52,000 cubic feet was passing at the outlet.

Beck's Run.—This mine was not in operation during the year.

Ormsby.—The general condition of this mine is satisfactory. Average quantity of air passing near the face of the different butt entries is about 9,000 cubic feet per minute, and 50,000 cubic feet at the furnace upcast shaft. The coal is mined by hand labor, and the hauling is done, partly, by steam locomotive and partly by the head and tail rope method. There are about seven miles of wire rope connected to the haulage plant. The coal in this mine is of excellent quality and is used principally for domestic purposes in the city of Pittsburgh.

Castle Shannon.—At the time of my last visit, the workings were found in reasonably good condition. Quantity of air passing at the furnace, 23,000 cubic feet per minute, and the quantity passing near the face of the workings varied in the different entries from 4,000 to 9,000 cubic feet per minute. The mine is worked by the single and double entry systems. The coal is mined by hand labor and it is hauled from the mine by animal power.

Knoxville and Rankin.—The coal produced at these mines is used for domestic purposes. At the time of my last visit there were not a sufficient number of persons employed in either mine to bring them under the provisions of the law.

## Mines on the Wheeling Division of the B. & O. R. R.

First Pool Nos. 1 and 2.—Both the double and treble entry systems of working are adopted at these mines. The coal is undermined by the use of mining machines, of the Harrison type. Haulage is done by the head and tail rope system. Vetilation is produced by a 25-foot Vulcan fan. The same fan ventilates both mines. The workings are at all times kept in a safe, healthful condition as far as possible. The quantity of air passing at the outlet, when last measured, was 90,000 cubic feet per minute, which is well distributed to the working parts of the mine.

Lick Run.—When last examined was in reasonably good condition, excepting that one of the butt entries was driven too far in advance of the air current. Quantity of air passing at the inlet, 18,800 cubic feet per minute, and from 6,000 to 7,000 cubic feet is circulating through the various butt entries. The coal is mined by hand labor; haulage is done by a steam locomotive, and a 10-foot Brazil fan is used to produce ventilation.

## Mines on the Little Saw Mill Run Railroad.

Enterprise.—This mine, when last examined, was in fairly good condition. Quantity of air near the face of the workings, as measured in the different entries, varied from 6,000 to 14,000 cubic feet per

minute, which was equal to the requirement for the number of persons employed therein, and the quantity of air passing at the outlet was 81,500 cubic feet per minute. The double and treble entry systems of working are adopted in the development of this coal field, and the air currents are taken into the mine from inlet shafts near the face of the workings; by this method, many difficulties are removed and the matter of ventilation is much simplified. The coal is mined by hand labor. Haulage is done partly by two steam locomotives and partly by the head line system. A 25-foot Vulcan fan is used to produce ventilation.

Venture.—At the time of my last visit some of the roadways were very wet and muddy, but all other conditions were passable. There were 30,000 cubic feet of air passing at the outlet, and the quantity passing in the different entries varied from 5,000 to 10,000 cubic feet per minute. The mine is worked by the double entry system and the coal is mined by hand labor. The head and tail rope system is used to haul the coal from the mine. A 20-foot Vulcan fan produces the ventilation.

Fox.—The general condition of this mine is reasonably good. About thirty men only are employed. The product is used principally for domestic purposes in the city of Pittsburg. The mine is worked on the single entry system. The coal is mined by hand labor and the head rope system of haulage is in use. The ventilation is produced by a 10-foot fan of the Guibal type. Quantity of air passing at the outlet, when last examined, measured 15,000 cubic feet, and 8,000 cubic feet was measured near the face of the entries.

Mines on the Pittsburgh, Cincinnati, Chicago and St. Louis Railroad.

Idlewood.—During the early part of the year the condition of this mine was unsatisfactory. The roadways were wet and muddy. The refuge holes were obstructed by dirt and slate, and the ventilation was not properly conducted to the face of the workings, but at the time of my last visit, the conditions were very much improved in all respects. Quantity of air at outlet, when last measured, was 10,400 cubic feet per minute, and 5,000 cubic feet was measured near the face of the entries. The coal is mined by hand labor, and the system of haulage is by animal power. A small furnace is used to produce the ventilation, but I have frequently found the furnace fire neglected and the workings short of air.

Grant.—This mine is worked on the double entry system. The coal is mined by hand labor and it is hauled from the mine by animal power. The ventilation is produced by a small furnace, which was passing 13,000 cubic feet of air per minute when last measured, and about 3,600 cubic feet was passing near the face of each butt entry. The roadways are wet and muddy, and the condition of the mine is anything but good.

Fort Pitt.—This mine is also worked on the double entry plan. The ventilation is produced by furnace power. The coal is undermined by machinery driven by electric power. An electric motor is also used to haul the coal from the interior of the mine to the tipple. The general condition of the mine, when last examined, was favorable. Quantity of air at outlet, 24,000 cubic feet per minute, and about 5,200 cubic feet was measured near the face of each butt entry.

Cherry.—When last visited was not in good condition. The air current was not properly conducted to the face of some of the entries. Quantity of air passing at the furnace shaft, 24,000 cubic feet per minute. This, if properly distributed, would be about equal to the requirements at the present time, but the time is near at hand when a more powerful ventilator will have to be provided. The coal is undermined by machinery propelled by electric power. An electric locomotive is used to haul the coal from the mine to the incline plane outside. The system of working is partly on the single and partly on the double entry plan, but hereafter the system of single entries will be abandoned.

Boyd.—Was in fair condition when last examined. Quantity of air at the furnace outlet, 18,000 cubic feet per minute and the quantity measured near the face of the workings varied from 4,000 to 9,600 cubic feet in the different entries. The coal is mined by hand labor and the head and tail rope system of haulage is in use. Operations are conducted on the double entry system.

Pine Ridge.—Had but a few men at work at my last visit. The system of working is by double entry, and the coal is mined by hand labor. The ventilation is produced by a small furnace. Quantity of air passing at outlet, 6,100 cubic feet per minute, and 4,000 cubic feet were measured near the face of the entries.

Oak Ridge.—Is in reasonably good condition. A 12-foot Brazil fan is used to produce ventilation, which fan was passing 18,000 cubic feet of air per minute when last measured, and 10,000 cubic feet were measured near the face of the entries. The Harrison type of mining machine is used to undercut the coal, and the hauling is done by the head and tail rope method.

National.—This mine is worked on the double entry system. The coal is mined by hand labor, and is hauled from the mine by the head and tail rope system. A furnace is used to produce the ventilation. Quantity of air, as measured in the several butt entries near the face of the workings, varied from 5,000 to 9,000 cubic feet per minute; 35,000 cubic feet was measured at the outlet. On my first visit, I found the traveling way almost impassable by reason of water and roof falls. I ordered it to be cleaned up and the water drained away forthwith. On my last visit the conditions were reasonably satisfactory.

Champion.—An 11-foot single inlet Capell fan has been provided to produce ventilation, and all parts of the mine are now supplied with an abundance of fresh air. Quantity of air in circulation, 77,000 cubic feet per minute. Speed of fan, 132 revolutions; W. G., 1.1 inches. The speed of the fan can be increased to 275 revolutions, or more, if necessary. The Harrison type of machine is used to undermine the coal. The hauling is done by the head and tail rope system, and the coal field is being developed on the double entry system.

Laurel Hill Nos. 1, 2 and 4.—The condition of the No. 1 mine is better than during the early part of the year. The traveling roads, escape way and airways have been improved so that the air currents are conducted to the face of the workings better than formerly, but the ventilation and drainage cannot be brought up to perfection until a shaft has been sunk at the face of the workings, which will shorten the airways about one-half and also act as a discharge outlet for the pumps used for drainage. Quantity of air at inlet, 65,000 cubic feet per minute, and from 5,000 to 11,000 cubic feet was measured near the face of the different entries. The coal is undercut by the Harrison type of mining machine. Haulage is done by the head and tail rope system, and the ventilation is produced by a 20-foot Vulcan fan.

The ventilation in the No. 2 mine is also produced by a 20-foot Vulcan fan, which was passing only 24,000 cubic feet of air per minute, when last measured; this was inadequate, and I ordered the mine foreman to increase the speed of the fan. The air volume, as measured in the different entries near the face of the workings varied from 5,600 to 8,500 cubic feet per minute. Electric mining machines are used to undercut the coal, and an electric locomotive is used to haul the product to the bottom of the shaft.

The condition of No. 4 mine during the early part of the year was very unsatisfactory, but when last examined, considerable improvement was noticeable, especially in regard to the ventilation and the condition of the roadways. A passageway is now being driven from the face of the mine to the surface, which will be of great benefit to the ventilation and drainage, and it can also be used for a traveling way. Quantity of air measured near the face of the different entries varied from 4,000 to 13,000 cubic feet per minute, and 65,000 cubic feet were measured at the outlet. The Harrison type of mining machine is in use and the coal is hauled to the bottom of the shaft by the head and tail rope system. A 25-foot Brazil fan is used to produce ventilation. The mode of operation at each mine is by the double entry system.

Brier Hill.—When last inspected, the condition of this mine was not so good as on former visits; in some instances the ventilation was not properly conducted to the face of the workings and there were too many men working in the same air current. Average quantity

of air passing near the face of the entries, was about 5,000 cubic feet per minute and 37,000 cubic feet were measured at the inlets, but the furnace was not being fired to its full capacity when the above measurements were taken. The coal is mined by hand labor, and it is hauled from the mine to the tipple by the head and tail rope system. The development of the coal field is conducted on the double entry system.

Nickel Plate.—This mine is under the same management as the Brier Hill mine, and the system of working, haulage and ventilation are the same, excepting that mining machines of the Harrison type are used to undercut the coal. Quantity of air passing near the face of the different entries varied from 5,000 to 15,000 cubic feet per minute, and 30,000 cubic feet at the outlet.

Jumbo.—Is in reasonably good condition. Quantity of air passing at the outlets, 73,000 cubic feet per minute and the quantity near the face of the several entries varies from 4,000 to 12,000 cubic feet. The mine is worked on the double entry system. The coal is undercut by the Harrison type of machine. The hauling is done by the head and tail rope system, and the ventilation is produced by a 20-foot Vulcan fan.

Mansfield and Erie, Willow Grove and Primrose.—These mines were idle throughout the year, and only about six men were employed in the Midway mine.

## Mines on the Chartiers and B. & M. Branches of the P., C., C. & St. L. R. R.

Mansfield No. 2.—The condition of this mine was satisfactory when last inspected. Quantity of air at outlet, 64,000 cubic feet per minute, being well distributed to the face of the workings. The coal field is being developed on the double entry system. The coal is mined by hand labor. The head and tail rope system of haulage is in use and an 18-foot fan produces the ventilation.

Nixon.—The condition of this mine is about equal to legal requirements. All parts of the workings are reasonably well ventilated. Average quantity of air near the face of each entry, about 6,000 cubic feet per minute and 53,000 cubic feet was measured at the outlet. The mine is worked on the double entry system. The link chain electric machines are used to undermine the coal, and it is hauled from the mine to the tipple by an electric locomotive. The ventilation is produced by furnace power.

Leasdale.—During the early part of the year the condition of this mine was very unsatisfactory. The main airway was partially flooded by water, consequently the ventilation was not equal to the requirements. The main hauling road was not properly drained and

many of the refuge holes were obstructed by slate. On visiting the mine later, I found the condition much improved in all respects. The link chain electric type of machines are used to undercut the coal in one part of the mine, and mining is done by hand labor in the other part. The hauling is done by the head and tail rope system and a furnace is used to produce ventilation. Quantity of air passing near the face of the entries, when last measured, 6,500 cubic feet per minute and 18,160 cubic feet, was measured at the outlet.

Summer Hill.—This mine was also in poor condition during the early part of the year, but when last inspected I observed quite an improvement. The main return airway had been cleaned up and enlarged. A main overcast had been built and some of the doors dispensed with, so that the air currents were conducted to the face of the workings much better than formerly. Quantity of air in the different entries near the face of the workings varies from 4,500 to 10,000 cubic feet per minute, and 52,000 cubic feet was measured at the outlet. About 30 per cent. of the air volume is lost by leakage and is of no benefit to the working parts of the mine. The coal is undermined partly by machinery and partly by hand labor. The link-chain type of machine is used, which is driven by electricity. A 14-foot Brazil fan is used to produce ventilation and the hauling is done by the head and tail rope system.

Bower Hill.—Was found in reasonably good condition, both in regard to ventilation and drainage. I measured 36,000 cubic feet of air per minute passing at the outlet, and about 6,000 cubic feet was measured near the face of the various entries. The system of working is that of double entry. The coal is mined by hand labor and is hauled from the mine to the tipple by animal power. A furnace is used to produce ventilation.

Bridgeville.—This mine is being developed on the treble entry system. The chain link type of mining machine, deriving its power from electricity, is used to undermine the coal, and it is hauled from the mine to the tipple by an electric locomotive. The ventilation is produced by a 16-foot Vulcan fan. Quantity of air at outlet, when last measured, 60,000 cubic feet per minute, and about 6,000 cubic feet was passing near the face of each entry. A squeeze had overran one part of the mine, but the section of workings affected are nearly worked out, and on account of the squeeze being local in extent, the operations in the main body of the mine will not be retarded.

Hastings Slope.—This mine was not in good condition during the early part of the year. The ventilation was inadequate and the air-currents were not properly conducted to the face of the workings. A 10-foot Brazil fan was erected last spring to produce ventilation, and on my last visit, the condition was satisfactory. Quantity of air passing at the inlet, 26,000 cubic feet per minute, and 8,000 cubic feet

were measured near the face of the butt entries. The coal is mined by hand labor and is hauled to the bottom of the slope by animal power. The whole outside plant, with the exception of the fan and fan house, was destroyed by fire on October 29 and no coal has been mined since.

Boon.—Was in fair condition, but is not beyond improvement. I measured 23,000 cubic feet of air per minute passing at the outlets, but the air currents were rather sluggish near the face of some of the entries. The system of working is that of double entry. The coal is mined by hand labor and the hauling is done by animal power. The ventilation is produced by a furnace.

Allison.—This mine was in reasonably good condition. Quantity of air passing near the face of the different entries, about 6,000 cubic feet per minute in each entry, and 31,300 cubic feet were measured at the outlets. The coal field is being developed on the double entry system. The mining is done by hand labor and the coal is hauled from the mine to the tipple by animal power. The ventilation is produced by two fire baskets. The drainage is also satisfactory at the present time.

Enterprise No. 2.—Operations were resumed at this mine the latter part of June, after a shut down of over one year. The drainage is imperfect, part of the workings being under water. The system of working is by double entry, and the coal is hauled from the cross entries by mules, and is then taken up the slope by the head line system. The empty trips are run back into the mine by gravity, with the wire rope attached to the last car. The coal is mined by hand labor, and the ventilation is produced by a small fan. Quantity of air passing at the outlet, 14,700 cubic feet per minute, the same being pretty well distributed to the face of the workings.

Northwestern.—Was not in good condition when last examined, the air current was sluggish and the roadways were not properly drained and the shelter holes, in some cases, were obstructed by slate. Quantity of air passing at the inlet, 11,500 cubic feet per minute, and about 4,500 cubic feet was measured near the face of the entries. Very little work has been done for over one year past. The entries are driven double. The coal is mined by hand labor and is hauled to the bottom of the shaft by animal power. The ventilation is produced by a small fan, which will not produce the required air volume when the mine is in full operation.

Vulcan.—This is a new operation opened during the year. The coal field is being developed in part on the treble entry system, while some of the cross entries are being driven double. The works are equipped with all the latest improvements for handling a large output of coal at a minimum cost. A 13½-foot Capell fan 5½ feet wide has been placed in position to produce the ventilation. I made a

test of it with the following results: Speed of fan, 227 revolutions per minute; quantity of air delivered, 218,000 cubic feet; W. G., 4 inches; percentage of body output, 122; horse power 137; horse power of engine not taken.

Creedmore.—This mine is worked on the double entry system. The coal is undercut by the Harrison type of machine and it is hauled to the bottom of the shaft by animal power. The ventilation is produced by a 16-foot Wilson fan, which is capable of delivering 100,000 cubic feet of air per minute, but the engine is not of sufficient power to drive it at the required speed, but arrangements are now being made to provide a larger engine. Quantity of air passing at outlet, when last measured, 32,400 cubic feet per minute, and the average quantity measured near the face of the entries was about 5,000 cubic feet in each entry.

Bishop.—This mine was found in very favorable condition when last inspected. I measured 80,000 cubic feet of air passing into the mine per minute, and about 10,000 cubic feet was measured near the face of each entry. The coal is mined by the Harrison type of machine and it is hauled from the cross entries to the bottom of the slope by animal power. The system of working is that of double entry, except the main face entries, in which case three entries are driven. Ventilation is produced by a 16-foot Wilson fan.

Morgan and Standard.—Both of these mines were idle throughout the year.

## Mines on the P., C. & Y. R. R.

O. I. C.—Was not in good condition when last examined. The refuge holes were partially obstructed by slate and the air currents were not properly conveyed to the face of the workings. Quantity of air at outlet, 14,000 cubic feet per minute, but only about 4,000 cubic feet were measured near the face of the entries. The mine is worked on the double entry system. The mining is done by hand labor and the ventilation produced by a furnace. The coal is hauled to the tipple by animal power.

Essen No. 2.—Is in better condition than formerly. A 20-foot fan of the Guibal type has been erected during the past summer. I measured the air current shortly after the erection of the fan, and it was then passing but 27,000 cubic feet per minute. The quantity of air near the face of the workings, at that time, was also inadequate, but some changes have since been made, and the speed of fan increased, which has about doubled the above volume. The mine hitherto has been worked on the double entry system, but they are now developing the coal field on the treble entry plan. The coal is undermined by the chain link type of machine, with electricity as the motive power, and an electric locomotive is used to haul the coal to the bottom of the slope.

Essen No. 3.—This mine is also in much better condition than at the time of my last report, but the air current was still below the requirements in one section of the workings, and some parts of the works were receiving more air than was required. The plan of development, method of mining and haulage are similar to that in vogue in the No. 2 mine. A 10-foot double inlet Capell fan, 6 feet wide, is now used to produce the ventilation. At the time of my last visit I made a test of this fan, with the following results: Speed of fan, 340 revolutions per minute; quantity of air delivered, 109,000 cubic feet; W. G., 7.9 inches; horse power developed 136; percentage of body output, about 70; horse power of engine not taken. The above results speak well for the fan, and it also shows that the airways are in very poor condition. The workings are extensive and the airways small, and there is not sufficient coal left to enlarge them, and about the only way out of the difficulty will be to make a main inlet shaft near the face of the mine, and place double doors on the main hauling road and use that for one of the return airways to the fan.

Federal Spring and Hickman.—These mines are operated under the same management. In the first named mine they are mining out the entry pillars, and the mine will soon be abandoned. Quantity of air passing at the outlet, 12,000 cubic feet per minute. In the Hickman mine, I measured 28,000 cubic feet of air per minute passing out at the furnace and the quantity measured near the face of the workings varied in the different entries from 4,000 to 11,000 cubic feet per minute. The total volume of air produced is not sufficient since the mining machines have been introduced, but previous to that time, when the coal was mined by hand labor, the ventilation was about equal to the requirements. The mine is worked on the double entry system. Haulage is by animal power, and the link chain type of machine is used to undermine the coal. Electricity is the motive power.

The Federal and Pittsburg Fuel mines have remained idle throughout the year, and the Beachmount mine is not now in operation, and worked only for a short time during the year.

Pan Handle.—This mine is worked on the double entry system. The coal is undermined by both the Harrison and chain cutter bar types of machine. The hauling is done by the head and tail rope system. A 16-foot Brazil fan is used to produce the ventilation. Quantity of air passing into the mine, when last measured, 44,000 cubic feet per minute, the greater part of which was being conveyed to the face of the entries. I observed that many of the room pillars were not cut through as often as was necessary. On the whole, the condition of the mine is better than formerly, but the capacity of the ventilating fan is not equal to the requirements of the mine.

Essen No. 1.—Was in reasonably good condition when last examined, but the air currents were not conveyed to the face of the workings quite as well as on former visits. Quantity of air at outlet, 70,000 cubic feet per minute. The mine is worked on the double entry system. The coal is mined by hand labor and is hauled from the interior of the mine to the bottom of the slope by the head and tail rope system. The ventilation is produced by a 20-foot fan of the Guibal type.

Beadling.—The condition of this mine is very unsatisfactory. The airways are in poor condition, which was caused mainly by a squeeze, which destroyed several of the butt entries and partially closed some of the airways. A 25-foot Vulcan fan is used to produce the ventilation. This fan, when the last air measurement was taken, was passing 25,200 cubic feet of air per minute. The condition of the airways and the mine in general can readily be deduced from the above figures. At the present time, they are opening up entries and airways into a new coal field and we may, perhaps, expect an improvement in the condition of the mine in the near future. The coal is undercut by the Harrison type of machine, and is hauled by animal power.

## Mines on the Pittsburgh and Lake Erie Railroad.

Moon Run.—This is an extensive operation. The coal field is being developed on the treble entry system. The coal is undercut by the Harrison type of machine, which have compressed air for their motive power. Two electric locomotives are used to haul the coal from the interior of the mine to the tipple. Both fan and furnace power are used to produce the ventilation. Total quantity of air passing at the outlets, when last measured, 114,500 cubic feet per minute, and the conditions of the workings were satisfactory, excepting in two or three entries in No. 1 section, where the air volume was below the requirements.

Dixon.—When last inspected, the fan was running slowly and the air currents were sluggish in one or two of the entries. Quantity of air passing at the outlet, 26,000 cubic feet per minute, but the fan will produce 100,000 cubic feet if necessary. The mine is worked on the double entry system. The coal is undermined by the Harrison type of machine, and the hauling is done by the head and tail rope system. A 10-foot single inlet Capell fan is used to produce the ventilation.

Margerum.—This mine was not in good condition when last examined. I found every door in the mine propped open, with one exception. Consequently, very little air was found near the face of the workings. It is true that they were not running coal on that date, but that was no excuse, for there were a number of miners at work making coal ready, and the doors should have been kept shut and the air

conducted through its proper channel, whether there was any person working in the mine or not, unless operations were indefinitely suspended. Some of the shelter holes were also obstructed by slate, and the roadways were very wet and muddy. Quantity of air at outlet, 18,000 cubic feet per minute. The mine is worked on the double entry plan. The coal is mined by hand labor and is hauled from the mine to the head of the incline plane by mules, and is then run down the gravity plane to the tipple.

Montours.—This mine was in reasonably good condition when last inspected. Quantity of air passing at the outlet, 36,000 cubic feet per minute. The coal is mined by hand labor and the hauling is done by the head and tail rope system. The mine is worked on the double entry plan. A furnace is used to produce ventilation.

## Mines West of the Allegheny River.

Pine Creek.—Was in reasonably good condition when last inspected excepting that some of the shelter holes were obstructed by slate and dirt. Quantity of air at inlet, 22,560 cubic feet per minute, and about 8,000 cubic feet was measured near the face of the entries, where the men were working. The system of working is that of double entry. The coal is mined by hand labor and the hauling is done by animal power. The ventilation is produced by a 12-foot fan of the Guibal type.

Hite.—This mine has been kept in very good condition during the year. The coal field is being developed on the double entry plan. The coal is mined by hand labor and is hauled from the mine to the tipple by the head and tail rope system. An 8-foot single inlet Capell fan is used to produce the ventilation. Average quantity of air passing near the face of the entries, about 6,000 cubic feet per minute, and 48,000 cubic feet were measured at the outlet.

West Tarentum.—The condition of this mine has been improved since my last report. The airways, doors and stoppings have been repaired. I measured 5,900 cubic feet of air passing the outlet per minute, which was being fairly well distributed to the face of the workings of the two butt entries that were being driven. About twenty miners only are employed.

Brakenridge.—The condition of this mine is favorable. Quantity of air at the outlet, 16,800 cubic feet per minute, which was being fairly well distributed to the face of the workings. The coal is mined by hand labor and is hauled from the mine by animal power. A furnace is used to produce ventilation.

Natrona.—This mine is worked principally on the single entry system. The coal is mined by hand labor, and it is hauled from the mine

by the head and tail rope system. Ventilation is produced by a 6-foot Champion fan, which was passing 58,000 cubic feet of air per minute, but the whole of this volume was not being conveyed to the face of the workings, still the workings were in reasonably good condition as regards healthfulness and safety.

Freeport.—This is a small operation, employing less than ten men at the present time. The condition of the workings was passable when last inspected.

## Fatal Accidents.

On January 11, at the Fort Pitt mine, John Hutchison, a motorman, was fatally injured by falling from the haulage motor, the front wheels of which passed over his body, crushing him in such a fearful manner that he died a few minutes after. Hutchison was employed to haul the coal from the main parting in the mine to the tipple with an electric motor. At the time of the accident he was passing in through the mine entrance with an empty trip of cars, when, by some means he fell from his seat on to the road-bed in front of the motor, the front wheels passing over him before it could be stopped.

On January 20, John Skohol, a miner, aged 37 years, was killed by a fall of slate, in his working place in the Cherry mine.

Stanish Oshhoysky, a miner, aged 37 years, was fatally injured while riding from his work between the cars on a full trip. He was caught by the roof and dragged on top of loaded car and crushed between the roof and coal on the car.

Burt B. Brown, a miner boy, aged 16 years, was killed in the first Pool, mine No. 1, on January 28. This boy was working with his father, shoveling slack back from the mining machine, when a small piece of slate fell from the roof and struck him on the head, causing instant death.

Casper Baust, a miner, was killed at the Venture mine, on February 1, by a fall of slate.

John Jacob, an Austrian miner, was fatally injured by a fall of coal on February 4, in the Essen No. 3 mine.

Mike Baokvish, a miner, was fatally injured in the Essen No. 3 mine on February 8, by a fall of slate; died on February 24.

Louis Hans, a miner boy, aged 17 years, was killed by fall of coal and slate, on February, 24, at the Nickel Plate mine.

Cillie Jackson, a miner, aged 27 years, was killed by a fall of slate in the Leasdale mine on March 1.

Mike Winshen and Peter Copsha, two Polish miners, were killed by a fall of slate in the Pan Handle mine on June 17.

Joseph Napier, a miner, was instantly killed by a fall of slate at the Bishop mine, on June 19.

John Bettler, a miner, was killed at Essen No. 3 mine by a fall of slate on June 21.

August Tommy, an Austrian miner, aged 33 years, was killed by a fall of slate in the First Pool mine on July 2.

Peter Spiermout, a miner, aged 19 years, was killed by fall of slate on July 3 in the Nickel Plate mine.

Robert Hare, a miner, was killed by a fall of roof in West Tarentum mine on October 1.

John McCluskey, Russian, a miner, age 30 years, was killed by a fall of slate at the Pan Handle mine on October 4.

Gambra Pellegrino, Italian, a miner aged 29 years, was killed at Essen No. 1 mine on October 4, by fall of slate.

John Yellenack, Austrian, a miner, aged 27 years, was fatally injured in Dickson mine, on November 1, by a fall of slate; he lived about twenty-four hours after the accident.

John Plewe, a Slavish miner, aged 22 years, was killed by a fall of slate in his working place.

Wm. Whilholder, a miner, aged 56 years, was instantly killed in his working place at the Ormsby mine, December 27, by a fall of slate.

TABLE No. 1.—Showing Location, etc., of Collieries in the Seventh Bituminous District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Allison, | Cook & Sons, | Washington, | R. M. Cook, | McGovern. |
| Bower Hill, | Alex. Dempster, | Allegheny, | W. W. Dempster, | Pittsburgh. |
| Bellwood, | Munhall Company, | Allegheny, | George Kramer, | Munhall. |
| Becks Run, | Hays Coal Company, | Allegheny, | Julius Esmiol, | Redman Mills. |
| Beadling, | Beadling Brothers, | Allegheny, | R. W. Smith, | Beadling. |
| Bridgeville, | Bridgeville Coal Company, | Allegheny, | John F. Hosack, | Bridgeville. |
| Boyd, | Boyd Coal Company, | Allegheny, | Jesse H. Sanford, | Carnegie. |
| Beachmount, | J. G. McMichael, | Allegheny, | J. C. McMichael, | Hickman. |
| Brakenridge, | Brackenridge Coal Company, | Allegheny, | Alfred Hicks, | Leechburg. |
| Boon, | Canonsburg Coal Company, Limited, | Washington, | E. T. Hitchman, | Canonsburg. |
| Brier Hill, | Patterson & Sauters, | Washington, | J. D. Sauters, | McDonald. |
| Creedmoore, | Ohio and Pennsylvania Coal Company, | Washington, | Reuben Street, | Cecil. |
| Champion, | Robbins Coal Mining Company, | Allegheny, | G. W. Schluederberg, | Pittsburg. |
| Cherry, | M. McCue & Co., | Allegheny, | James Boyle, | 552 Fourth Ave., Pittsburg |
| Castle Shannon, | Pittsburgh and Castle Shannon R. R. Co., | Allegheny, | E. J. Reamer, | 50 Carson St., Pittsburg. |
| Calhoun, | W. S. B. Hays, | Allegheny, | L. C. Hays, | Homestead. |
| Dickson, | Imperial Coal Company, | Allegheny, | L. S. Young, | Imperial. |
| Enterprise, | Hartley & Marshall, | Allegheny, | Beecher Hartley, | West End, Pittsburg. |
| Essen No. 1, | Essen Coal Company, | Allegheny, | Thomas Renshaw, | Essen. |
| Essen Nos. 2 and 3, | Essen Coal Company, | Allegheny, | William Baldwin, | Federal. |
| Enterprise No. 2, | E. Morris & Co., | Washington, | G. E. Thomas, | Arden. |
| Federal, | Chartiers Block Coal Company, | Allegheny, | William Baldwin, | Federal. |
| Freeport, | Freeport Coal Company, | Allegheny, | N. S. Hicks, | Leechburg. |
| Fox, | Thomas Fox, | Allegheny, | Jas. T. Fox, | 121 Wabash Av., Pittsb'g. |
| Federal Spring, | Federal Coal Company, | Allegheny, | R. P. Grist, | Hickman. |
| First Pool Nos. 1 and 2, | First Pool Mon. Gas Coal Co., | Allegheny, | G. W. Schluederberg, | 232 5th Ave., Pittsburg. |
| Fort Pitt, | Pittsburg Block Coal Company, | Allegheny, | C. J. Nebo, | Walkers Mills. |
| Grant, | Hoosack Brothers, | Allegheny, | Geo. Z. Hoosack, | Carnegie. |
| Hickman, | Federal Coal Company, | Allegheny, | R. P. Grist, | Hickman. |
| Hays Street Run Nos. 2 & 3, | Hays Coal Company, | Allegheny, | John Watson, | Hope Church. |
| Hastings Slope, | Slope Mines Coal Company, | Allegheny, | John Neish, | Bridgeville. |
| Hite, | McFetridge Brothers, | Allegheny, | G. H. McFetridge, | Hite. |
| Idlewood, | Thos. D. Steen, Jr., | Allegheny, | Thos. D. Steen, | Idlewood. |
| Jumbo, | Pittsburg Consolidated Coal Company, | Washington, | G. W. Schluederberg, | 232 5th Ave., Pittsburg. |
| Laurel Hill Nos. 1 and 4, | W. P. Rend & Co., | Allegheny, | David Brown, | McDonald. |
| Laurel Hill No. 2, | W. P. Rend & Co., | Washington, | David Brown, | McDonald. |
| Lick Run, | Keeling Coal Co., | Allegheny, | Peter J. Keeling, | Pittsburg. |
| Leasdale, | Jesse H. Sanford, | Allegheny, | Jesse H. Sanford, | Carnegie. |
| Montour, | Imperial Coal Company, | Allegheny, | L. S. Young, | Imperial. |
| Mansfield No. 2, | Mansfield Coal and Coke Company, | Allegheny, | Daniel Boden, | Carnegie. |
| Mansfield and Erie, | Pittsburg Fuel Company, | Allegheny, | Daniel Boden, | Pittsburg. |
| Midway, | Midway Block Coal Company, | Washington, | G. W. Schluederberg, | Pittsburg. |
| Margerum, | Morgan, Moore & Baine, | Allegheny, | Jas. F. Cook, | Van Meter. |
| Moon Run, | Moon Run Coal Company, | Allegheny, | N. F. Sanford, | Moon Run. |
| Morgan, | Moon Run Coal Company, | Allegheny, | N. F. Sanford, | Moon Run. |
| National, | National Coal Company, Limited, | Allegheny, | John F. Mullooly, | Noblestown. |

| | | | | |
|---|---|---|---|---|
| Nixon, | Alex. Black Coal Co., Limited, | Allegheny, | W. H. Linsley, | Joint. |
| Natrona, | Pennsylvania Salt Manufacturing Co., | Allegheny, | W. H. Linsley, | Natrona. |
| North Western, | W. L. Dixon & Co., | Allegheny, | John Owens, | Bridgeville. |
| Nickel Plate, | J. D. Sauters, | Allegheny, | J. D. Sauters, | McDonald. |
| Ormsby, | Keeling Coal Company, | Allegheny, | Peter J. Keeling, | Pittsburg. |
| Oak Ridge, | Oak Ridge Coal Company, Limited, | Allegheny, | G. W. Schluederberg, | Pittsburg. |
| O. J. C., | W. J. Steen, | Allegheny, | J. H. Bates, | Box 38, Carnegie. |
| Pine Creek, | Robbins Coal and Coke Company, | Allegheny, | G. W. Schluederberg, | Pittsburg. |
| Pine Ridge, | Mankedick Coal Company, | Allegheny, | F. W. Mankedick, | Oakdale. |
| Pan Handle, | Pan Handle Coal Company, | Allegheny, | F. W. Jones, | Essen. |
| Pittsburg Fuel No. 2, | Pittsburg Fuel Company, | Allegheny, | F. W. Jones, | Pittsburg. |
| Primrose, | Pittsburg Consolidated Coal Company, | Washington, | G. W. Schluederberg, | Pittsburg. |
| Ridgeway Bishop, | Ridgway Bishop Coal Company, | Washington, | G. W. Schluederberg, | Bishop. |
| Streets Run, | Harrison Gas Coal Company, | Allegheny, | W. L. Nancarrow, | Hope Church. |
| Summer Hill, | Frank Armstrong, | Allegheny, | W. L. Nancarrow, | Woodville. |
| Standard, | W. P. Rend & Co., | Allegheny, | David Brown, | McDonald. |
| Venture, | E. N. Wildman, | Allegheny, | E. N. Wildman, | West End. |
| Vulcan, | Vulcan Coal Company, | Allegheny, | David Orr, | Pittsburg. |
| Willow Grove, | Willow Grove Mining Company, | Allegheny, | G. W. Schluederberg, | Bridgeville. |
| Walton, | Joseph Walton & Co., Incorporated, | Allegheny, | Maurice Kapp, | Pittsburg. |
| West Tarentum, | McFetridge Brothers, | Allegheny, | G. H. McFetridge, | Carrick. |
| | | | | Hite. |

27—10—97

TABLE No. 2.—Gives the total number of tons of coal mined and tons of coke produced in each Colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Eighth Bituminous District, for the year ending December 31, 1897.

| Names of Collieries. | Location. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Allison, | Washington, | 118,894 | ..... | ..... | ..... | 118,894 | 164 | 171 | ..... | 2 | 60 | ..... | ..... | 15 | ..... | ..... |
| Bower Hill, | Allegheny, | 58,974 | ..... | ..... | ..... | 58,974 | 135 | 164 | ..... | ..... | ..... | ..... | ..... | 9 | ..... | ..... |
| Bellwood,* | Allegheny, | 77,530 | ..... | 190 | 1,090 | ..... | 123 | 189 | ..... | ..... | ..... | 25 | 1 | 14 | ..... | ..... |
| Beadling, | Allegheny, | 195,684 | ..... | 1,232 | 937 | 193,515 | 198 | 340 | ..... | 4 | 639 | 60 | 4 | 18 | ..... | ..... |
| Bridgeville, | Allegheny, | 104,980 | ..... | 1,020 | 450 | 103,510 | 170 | 212 | ..... | ..... | 207 | ..... | 2 | 9 | 1 | ..... |
| Boyd, | Allegheny, | 40,049 | ..... | 450 | 100 | 39,499 | 168 | 109 | ..... | ..... | ..... | ..... | 1 | 4 | ..... | ..... |
| Beachmount, | Allegheny, | 43,379 | ..... | 50 | 200 | 43,129 | 180 | 75 | ..... | 1 | ..... | ..... | 1 | 6 | ..... | ..... |
| Brakenridge, | Allegheny, | 40,000 | ..... | ..... | ..... | ..... | 308 | 56 | ..... | ..... | 400 | ..... | ..... | 4 | ..... | ..... |
| Boon, | Washington, | 67,644 | ..... | 196 | 11,948 | 55,590 | 198 | 123 | ..... | ..... | 15 | ..... | 2 | 7 | ..... | ..... |
| Brier Hill, | Washington, | 65,676 | ..... | 600 | ..... | 65,076 | 147 | 168 | ..... | ..... | ..... | ..... | 3 | 12 | ..... | ..... |
| Creedmoore, | Washington, | 87,455 | ..... | 2,500 | 1,500 | 83,455 | 125 | 255 | ..... | 1 | ..... | 200 | 4 | 11 | ..... | ..... |
| Castle Shannon, | Allegheny, | 46,406 | ..... | ..... | 46,406 | ..... | 200 | 117 | ..... | ..... | ..... | ..... | ..... | 12 | ..... | 4 |
| Champion, | Allegheny, | 139,369 | ..... | 4,250 | 800 | 134,319 | 164 | 232 | ..... | ..... | ..... | ..... | 6 | 19 | ..... | ..... |
| Cherry, | Allegheny, | 66,217 | ..... | 567 | 149 | 65,501 | 150 | 85 | 1 | 1 | ..... | ..... | 1 | 7 | 1 | ..... |
| Calhoon, | Allegheny, | 11,774 | ..... | ..... | 11,774 | ..... | 295 | 11 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... |
| Dickson, | Allegheny, | 89,588 | ..... | 1,804 | 1,800 | 85,983 | 190 | 142 | 1 | 1 | ..... | ..... | 4 | 12 | ..... | ..... |
| Enterprise, | Allegheny, | 118,019 | ..... | 500 | 200 | 117,319 | 135 | 259 | ..... | ..... | ..... | 20 | 2 | 10 | 2 | ..... |
| Essen No. 1, | Allegheny, | 97,416 | ..... | 643 | ..... | 96,773 | 105 | 213 | 1 | ..... | ..... | ..... | 2 | 13 | ..... | ..... |
| Essen No. 2, | Allegheny, | 108,137 | ..... | 307 | ..... | 107,830 | 111 | 213 | ..... | 2 | ..... | ..... | 4 | 14 | 1 | ..... |
| Essen No. 3, | Allegheny, | 155,735 | ..... | 2,415 | ..... | 153,320 | 122 | 286 | 3 | 5 | ..... | ..... | 4 | 16 | 1 | ..... |
| Enterprise No. 2, | Washington, | 21,885 | ..... | 720 | ..... | 21,165 | 65 | 79 | ..... | 1 | 55 | ..... | 2 | 4 | ..... | ..... |
| Fox, | Allegheny, | 6,788 | ..... | ..... | 6,788 | ..... | 175 | 30 | ..... | ..... | ..... | ..... | 1 | 2 | ..... | ..... |
| Federal Spring, | Allegheny, | 26,475 | ..... | ..... | ..... | 26,475 | 140 | 54 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| Freeport, | Allegheny, | 3,983 | ..... | ..... | ..... | 3,983 | 130 | 20 | ..... | ..... | 75 | ..... | ..... | 1 | ..... | ..... |
| First Pool Nos. 1 and 2, | Allegheny, | 344,447 | ..... | 5,400 | 1,200 | 337,847 | 168 | 416 | 2 | 3 | ..... | ..... | 7 | 50 | ..... | ..... |
| Fort Pitt, | Allegheny, | 98,862 | ..... | 2,000 | 360 | 98,502 | 196 | 136 | 1 | ..... | 75 | ..... | 1 | 6 | 1 | ..... |
| Grant, | Allegheny, | 19,503 | ..... | 25 | 117 | 19,261 | 133 | 61 | ..... | ..... | ..... | ..... | ..... | 6 | ..... | ..... |
| Hickman, | Allegheny, | 82,909 | ..... | 600 | ..... | 82,309 | 141 | 175 | ..... | ..... | ..... | ..... | 1 | 17 | ..... | ..... |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hastings Slope, | Allegheny, | 38,000 | | 1,100 | 150 | 36,750 | 160 | 137 | | | | | 3 | 8 | | |
| Hite, | Allegheny, | 80,300 | | 1,641 | 1,425 | 77,135 | 277 | 141 | | | 950 | | 3 | 5 | | |
| Hays Street Run Nos. 2 and 3,* | Allegheny, | 114,208 | | 75 | 266 | | 102 | 340 | | | | | 2 | 2 | | |
| Idlewood, | Allegheny, | 27,700 | | 125 | 100 | 27,500 | 175 | 69 | | 1 | 5 | | 1 | 8 | | |
| Jumbo, | Washington, | 164,186 | | 4,700 | 625 | 158,861 | 160 | 305 | | 3 | | | 7 | 21 | | |
| Lick Run, | Allegheny, | 16,402 | | 1,100 | | 15,302 | 123 | 93 | | | | | 2 | 5 | 1 | |
| Laurel Hill No. 1, | Allegheny, | 228,500 | 4,500 | 7,300 | 400 | 214,450 | 206 | 237 | | 4 | 800 | | 10 | 25 | | 51 |
| Laurel Hill No. 2, | Washington, | 62,182 | | 1,900 | 500 | 59,732 | 108 | 157 | 1 | | 240 | | 6 | 12 | 1 | |
| Laurel Hill No. 4, | Allegheny, | 132,811 | | 3,828 | | 129,013 | 171 | 228 | 1 | 1 | 530 | | 9 | 24 | | |
| Leasdale, | Allegheny, | 40,506 | | 300 | | 40,806 | 79 | 115 | 1 | 2 | | | 1 | 5 | | |
| Montour, | Allegheny, | 30,960 | | 320 | 470 | 30,170 | 134 | 91 | | | | | 2 | 8 | | |
| Margerum, | Allegheny, | 89,515 | | | 100 | 89,415 | 166 | 176 | | 2 | 10 | 150 | | 10 | | |
| Mansfield No. 2, | Allegheny, | 206,505 | | 700 | 1,100 | 204,705 | 158 | 347 | 1 | 8 | | | 2 | 18 | | |
| Moon Run, | Allegheny, | 149,638 | | 2,958 | 2,086 | 144,592 | 134 | 361 | | 2 | | | 5 | 23 | 2 | |
| North Western, | Allegheny, | 27,506 | | 76 | | 27,430 | 72 | 137 | | | | | 2 | 8 | | |
| National, | Allegheny, | 47,121 | | | | 47,121 | 124 | 127 | | | | | 3 | 6 | | |
| Natrona, | Allegheny, | 102,037 | | 750 | | | 290 | 150 | | | 1,290 | | 2 | 18 | | |
| Nixon, | Allegheny, | 77,586 | | 636 | | 76,950 | 119 | 200 | | | | | 2 | 10 | 1 | |
| Nickel Plate, | Allegheny, | 99,545 | | 2,000 | 2,000 | 95,545 | 183 | 147 | 2 | 5 | | | 3 | 12 | | |
| Ormsby, | Allegheny, | 89,047 | | 2,230 | 86,817 | | 203 | 193 | 1 | | | | 4 | 15 | 1 | |
| Oak Ridge, | Allegheny, | 47,046 | | 800 | 125 | 46,121 | 187 | 83 | | | | | 2 | 5 | | |
| O. I. C., | Allegheny, | 52,151 | | | | 52,151 | 145 | 109 | | | | | | 7 | | |
| Pan Handle, | Allegheny, | 183,002 | | | | 183,002 | 168 | 323 | 3 | 5 | | | 6 | 14 | | |
| Pine Creek, | Allegheny, | 35,318 | | 600 | 300 | 34,418 | 213 | 76 | | | | | 2 | 5 | | |
| Pine Ridge, | Allegheny, | 13,630 | | | | 13,630 | 80 | 52 | | | | | | 2 | | |
| Ridgway Bishop, | Washington, | 130,947 | | 1,870 | 2,000 | 127,077 | 135 | 189 | 1 | | | | 5 | 12 | | |
| Streets Run, | Allegheny, | 32,338 | | 625 | 313 | 31,400 | 172 | 53 | | | | | 1 | 3 | | |
| Summer Hill, | Allegheny, | 133,942 | | 342 | | 133,600 | 203 | 281 | | | | | 3 | 12 | | |
| Venture,† | Allegheny, | 87,896 | | | | 52,728 | 197 | 229 | 1 | 2 | | | 3 | 14 | | |
| Vulcan, | Allegheny, | 25,000 | | 800 | | 24,200 | | 84 | | | | | 2 | 8 | | |
| Walton,† | Allegheny, | 87,787 | | | 948 | 24,104 | 160 | 294 | | 2 | 2 | 150 | 4 | 20 | | |
| West Tarentum, | Allegheny, | 9,345 | | | 9,345 | | 307 | 18 | 1 | | 100 | | | 1 | | |
| Total, | | 5,000,375 | 4,500 | 62,245 | 194,889 | 4,310,237 | 9,640 | 9,933 | 22 | 58 | 5,453 | 605 | 150 | 667 | 13 | 55 |

* Product shipped by river. † Product shipped by river in part.

TABLE No. 3—Showing the number of each class of Employes at each Colliery in the Seventh Bituminous District, during the year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' boys. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Allison, | 1 | ..... | 146 | 3 | 8 | ..... | 1 | 159 | ..... | 2 | ..... | ..... | 7 | 3 | 12 | 171 |
| Bower Hill, | 1 | 2 | 145 | ..... | 7 | 1 | 1 | 157 | ..... | 1 | ..... | ..... | 5 | 1 | 7 | 164 |
| Bellwood, | 1 | ..... | 128 | 30 | 12 | 2 | 2 | 175 | 2 | 2 | 2 | ..... | 6 | 2 | 14 | 189 |
| Beadling, | 1 | 2 | 287 | 12 | 18 | 6 | ..... | 326 | 1 | 3 | 3 | ..... | 4 | 3 | 14 | 340 |
| Bridgeville, | 1 | 1 | 173 | ..... | 9 | 3 | 7 | 194 | 1 | 5 | 2 | ..... | 7 | 3 | 18 | 212 |
| Boyd, | 1 | 1 | 96 | ..... | 4 | ..... | ..... | 102 | ..... | 2 | 1 | ..... | 3 | 1 | 7 | 109 |
| Beachmount, | 1 | ..... | 60 | ..... | 5 | 1 | ..... | 67 | ..... | 1 | 1 | ..... | 5 | 1 | 8 | 75 |
| Brakenridge, | 1 | ..... | 43 | 5 | 3 | ..... | 1 | 53 | ..... | ..... | ..... | 1 | 2 | ..... | 3 | 56 |
| Boon, | 1 | ..... | 106 | ..... | 5 | ..... | 2 | 114 | 1 | 2 | 1 | 2 | 1 | 2 | 9 | 123 |
| Brier Hill, | 1 | 2 | 130 | 8 | 10 | 1 | 4 | 156 | 1 | 1 | 2 | ..... | 7 | 1 | 12 | 168 |
| Creedmore, | 1 | 2 | 207 | 11 | 11 | 1 | 5 | 238 | ..... | 3 | 5 | ..... | 9 | ..... | 17 | 255 |
| Castle Shannon, | 1 | 1 | 86 | 2 | 8 | 1 | 3 | 102 | 1 | 3 | ..... | ..... | 10 | 1 | 15 | 117 |
| Champion, | 1 | ..... | 185 | ..... | 13 | 2 | 10 | 211 | 1 | 4 | 5 | ..... | 10 | 1 | 21 | 232 |
| Cherry, | 1 | ..... | 63 | ..... | 5 | ..... | 5 | 74 | 1 | 2 | 2 | ..... | 5 | 1 | 11 | 85 |
| Calhoun, | ..... | ..... | 8 | ..... | 1 | ..... | ..... | 9 | 1 | ..... | ..... | ..... | ..... | 1 | 2 | 11 |
| Dickson, | 1 | ..... | 100 | 5 | 10 | 1 | 10 | 127 | 1 | 3 | 3 | ..... | 7 | 1 | 15 | 142 |
| Enterprise, | 1 | 3 | 200 | 11 | 9 | 7 | 12 | 243 | ..... | 4 | 5 | ..... | 4 | 3 | 16 | 259 |
| Essen No. 1, | 1 | 2 | 180 | 4 | 12 | 1 | 3 | 203 | 1 | 3 | 3 | ..... | 3 | ..... | 10 | 213 |
| Essen No. 2, | 1 | 1 | 175 | 4 | 13 | 4 | 2 | 200 | 1 | 1 | 2 | 1 | 6 | 2 | 13 | 213 |
| Essen No. 3, | 1 | 2 | 225 | 4 | 19 | 4 | 2 | 257 | 1 | 2 | 2 | 1 | 23 | ..... | 29 | 286 |
| Enterprise No. 2, | 1 | ..... | 65 | ..... | 4 | ..... | ..... | 70 | 1 | 1 | 2 | 1 | 3 | 1 | 9 | 79 |
| Fox, | 1 | ..... | 25 | ..... | 1 | ..... | ..... | 27 | 1 | ..... | 1 | ..... | 1 | ..... | 3 | 30 |
| Federal Spring, | 1 | ..... | 46 | ..... | 2 | 2 | 1 | 52 | ..... | ..... | ..... | ..... | 2 | ..... | 2 | 54 |
| Freeport, | 1 | ..... | 16 | ..... | 1 | ..... | ..... | 18 | ..... | ..... | ..... | ..... | 1 | 1 | 2 | 20 |
| First Pool Nos. 1 and 2, | 2 | 2 | 320 | 14 | 30 | 5 | ..... | 373 | ..... | 5 | 6 | ..... | 29 | 3 | 43 | 416 |
| Fort Pitt, | 1 | ..... | 85 | 5 | 7 | ..... | 17 | 115 | 1 | 2 | 4 | ..... | 11 | 3 | 21 | 136 |
| Grant, | 1 | ..... | 45 | ..... | 7 | ..... | 2 | 55 | ..... | 1 | ..... | ..... | 2 | 3 | 6 | 61 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hickman, | 1 | ..... | 140 | ..... | 12 | 6 | 5 | 164 | ..... | 3 | 2 | ..... | 5 | 1 | 11 | 175 |
| Hastings Slope, | 1 | 1 | 109 | 2 | 8 | 2 | 2 | 125 | 1 | 2 | 3 | 1 | 4 | 1 | 12 | 137 |
| Hite, | 2 | 1 | 102 | 12 | 5 | 4 | 4 | 130 | ..... | 2 | 3 | ..... | 4 | 2 | 11 | 141 |
| Hays Street Run Nos. 2 and 3, | 2 | 1 | 272 | ..... | 22 | 6 | ..... | 303 | 1 | 5 | 2 | ..... | 25 | 4 | 37 | 340 |
| Idlewood, | 1 | 1 | 50 | 5 | 5 | ..... | ..... | 62 | 1 | 2 | 1 | ..... | 2 | 1 | 7 | 69 |
| Jumbo, | 1 | 2 | 239 | ..... | 14 | 1 | 20 | 277 | 1 | 4 | 7 | ..... | 14 | 2 | 28 | 305 |
| Lick Run | 1 | 1 | 65 | 6 | 5 | 1 | 3 | 82 | 1 | 1 | 2 | ..... | 6 | 1 | 11 | 93 |
| Laurel Hill No. 1, | 1 | 2 | 132 | 35 | 16 | 6 | 10 | 202 | 1 | 3 | 8 | ..... | 20 | 3 | 35 | 237 |
| Laurel Hill No. 2, | 1 | 2 | 108 | 3 | 9 | 4 | 7 | 134 | ..... | 4 | 6 | ..... | 10 | 3 | 23 | 157 |
| Laurel Hill No. 4, | 1 | 2 | 160 | 14 | 19 | 5 | 8 | 209 | ..... | 2 | 9 | 1 | 4 | 3 | 19 | 228 |
| Leasdale, | 1 | 1 | 98 | ..... | 5 | 2 | 2 | 109 | ..... | 1 | 1 | ..... | 3 | 1 | 6 | 115 |
| Montours, | 1 | ..... | 65 | 3 | 6 | 1 | 3 | 79 | 1 | 1 | 2 | ..... | 7 | 1 | 12 | 91 |
| Margerum, | 1 | ..... | 150 | ..... | 9 | 3 | 3 | 166 | ..... | 1 | ..... | ..... | 8 | 1 | 10 | 176 |
| Mansfield No. 2, | 1 | 3 | 275 | 20 | 14 | 3 | 4 | 320 | ..... | 7 | 4 | ..... | 13 | 3 | 27 | 347 |
| Moon Run, | 1 | 2 | 281 | 15 | 21 | ..... | 9 | 329 | ..... | 6 | 4 | 1 | 18 | 3 | 32 | 361 |
| North Western, | 1 | 1 | 111 | 6 | 5 | 1 | 2 | 127 | ..... | 3 | 1 | ..... | 5 | 1 | 10 | 137 |
| National, | 1 | 1 | 100 | ..... | 6 | 2 | 5 | 115 | 1 | 1 | 2 | ..... | 7 | 1 | 12 | 127 |
| Natrona, | 2 | ..... | 95 | 10 | 27 | 3 | 7 | 144 | 1 | 2 | 3 | ..... | ..... | ..... | 6 | 150 |
| Nixon, | 1 | 2 | 175 | ..... | 7 | ..... | 3 | 188 | 1 | 3 | 2 | ..... | 5 | 1 | 12 | 200 |
| Nickel Plate, | 1 | 1 | 100 | 10 | 12 | 3 | 3 | 130 | 1 | 2 | 3 | ..... | 10 | 1 | 17 | 147 |
| Ormsby, | 1 | 2 | 157 | 6 | 10 | 1 | 6 | 183 | 1 | 2 | 2 | ..... | 3 | 2 | 10 | 193 |
| Oak Ridge, | 1 | 1 | 60 | 3 | 6 | 2 | ..... | 73 | ..... | 2 | 3 | ..... | 4 | 1 | 10 | 83 |
| O. I. C., | 1 | ..... | 95 | ..... | 4 | 1 | 2 | 103 | 1 | 1 | ..... | ..... | 4 | ..... | 6 | 109 |
| Pan Handle, | 1 | 2 | 280 | 4 | 13 | 1 | 4 | 305 | ..... | 3 | 4 | ..... | 9 | 2 | 18 | 323 |
| Pine Creek, | 1 | ..... | 60 | 4 | 3 | 1 | ..... | 69 | ..... | 1 | 1 | ..... | 4 | 1 | 7 | 76 |
| Pine Ridge, | 1 | ..... | 40 | 5 | 2 | ..... | ..... | 48 | ..... | ..... | ..... | ..... | 3 | 1 | 4 | 52 |
| Ridgway Bishop, | 1 | 2 | 149 | 4 | 8 | 3 | 4 | 171 | ..... | 3 | 3 | ..... | 10 | 2 | 18 | 189 |
| Streets Run, | 1 | ..... | 37 | 5 | 2 | 1 | 1 | 47 | ..... | 1 | 1 | ..... | 3 | 1 | 6 | 53 |
| Summer Hill, | 1 | 3 | 240 | ..... | 9 | 1 | 15 | 269 | 2 | 4 | 2 | ..... | 3 | 1 | 12 | 281 |
| Venture, | 1 | 2 | 175 | 12 | 13 | 4 | 7 | 214 | ..... | 2 | 3 | ..... | 8 | 2 | 15 | 229 |
| Vulcan, | 1 | ..... | 60 | 2 | 5 | ..... | 3 | 71 | 1 | 2 | 4 | ..... | 4 | 2 | 13 | 84 |
| Walton, | 1 | 2 | 238 | 14 | 18 | 3 | ..... | 276 | 1 | 4 | 4 | ..... | 7 | 2 | 18 | 294 |
| West Tarentum, | 1 | ..... | 14 | 2 | 1 | ..... | ..... | 18 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 18 |
| Total, | 63 | 59 | 7,777 | 320 | 555 | 113 | 232 | 9,119 | 34 | 133 | 144 | 9 | 405 | 89 | 814 | 9,933 |

TABLE No. 4—List of Fatal Accidents that occurred in and about the Mines of the Seventh Bituminous District, for the year ending December 31, 1897.

| Date of accident. | | Name of Person. | Occupation. | Age. | Married or single | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 11, | John Hutchison, | Motorman, | 27 | M. | 2 | Fort Pitt, | Allegheny, | Lost his life by falling in front of electric motor, which passed over him. |
| | 20, | John Skohol, | Miner, | 37 | M. | 2 | Cherry, | Allegheny, | Killed by a fall of slate in his working place. |
| | 25, | Stanish Oshoysky, | Miner, | 37 | M. | 3 | Mansfield No. 2, | Allegheny, | Fatally injured by being crushed between full car and roof. |
| | 28, | Bert. B. Brown, | Miner boy, | 16 | .... | .... | First Pool, | Allegheny, | Killed by a fall of slate in his working place. |
| Feb. | 1, | Casper Baust, | Miner, | 21 | S. | .... | Venture, | Allegheny, | Killed by a fall of slate in his working place. |
| | 4, | John Jacob, | Miner, | 40 | M. | .... | Essen No. 3, | Allegheny, | Fatally injured by a fall of coal in his working place. |
| | 8, | Mike Baokvish, | Miner, | 44 | M. | 5 | Essen No. 3, | Allegheny, | Fatally injured by a fall of slate in his working place. |
| | 24, | Louis Haus, | Miner boy, | 17 | .... | .... | Nickel Plate, | Allegheny, | Killed by a fall of coal and slate in his working place. |
| Mar. | 1, | Cillie Jackson, | Miner, | 27 | S. | .... | Leasdale, | Allegheny, | Killed by a fall of coal in his room. |
| June | 17, | Mike Wishen, | Miner, | 32 | M. | 4 | Pan Handle, | Allegheny, | Killed by a fall of slate in his working place. |
| | 17, | Peter Copsha, | Miner, | 23 | M. | 2 | Pan Handle, | Allegheny, | Killed by a fall of slate in his working place. |
| | 19, | Joseph Napier, | Miner, | 28 | S. | .... | Bishop, | Washington, | Killed by a fall of slate in his room. |
| | 21, | John Bettler, | Miner, | 25 | S. | .... | Essen No. 3, | Allegheny, | Killed by a fall of slate in his working place. |
| July | 2, | August Tommy, | Miner, | 33 | M. | .... | First Pool, | Allegheny, | Killed by a fall of slate in his working place. |
| | 3, | Peter Spiermont, | Miner boy, | 19 | .... | .... | Nickel Plate, | Allegheny, | Killed by a fall of slate in his working place. |
| Oct. | 1, | Robert Hare, | Miner, | 59 | M. | .... | West Tarentum, | Allegheny, | Killed by a fall of roof in his working place. |
| | 4, | John McCluskey, | Miner, | 30 | M. | 2 | Pan Handle, | Allegheny, | Killed by a fall of slate in his working place. |
| | 4, | Gamba Pellegrino, | Miner, | 29 | S. | .... | Essen No. 1, | Allegheny, | Killed by a fall of slate in his working place. |
| Nov. | 1, | John Yellenack, | Miner, | 27 | M. | 1 | Dickson, | Allegheny, | Killed by a fall of slate in his room. |
| | 13, | Joseph Noshalko, | Miner, | 32 | M. | 4 | Laurel Hill No. 4, | Allegheny, | Fatally injured by a fall of slate in his room. |
| Dec. | 24, | John Pleur, | Miner, | 22 | S. | .... | Laurel Hill No. 2, | Washington, | Killed by a fall of slate in his room. |
| | 27, | Wm. Whilholder, | Miner, | 56 | M. | 3 | Ormsby, | Allegheny, | Killed by a fall of slate in his working place. |

TABLE No. 5—List of Non-Fatal Accidents that occurred in and about the Mines of the Seventh Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Jan. 13, | Thomas Powell, | Miner, | 45 | M. | Mansfield No. 2, | Allegheny, | Foot crushed by fall of coal. |
| 27, | Joseph Delinno, | Miner, | 30 | M. | Essen No. 3, | Allegheny, | Slightly injured by an explosion of gas. |
| Feb. 3, | Simon Romanitz, | Miner, | .... | .... | Moon Run, | Allegheny, | Injured by coal cars while making an attempt to get on full trip. |
| 4, | Scicer Williams, | Miner boy, | 15 | .... | Laurel Hill No. 1, | Allegheny, | Foot and leg injured by fall of coal, necessitating amputation of foot. |
| 8, | Jacob Sailor, | Miner, | 40 | M. | Essen No. 3, | Allegheny, | Slightly injured by fall of slate. |
| 11, | August Troy, | Laborer, | 34 | M. | Nickel Plate, | Allegheny, | Arm broken; fell from the trestle outside of mine. |
| 11, | Thomas Purdy, | Laborer, | 24 | M. | Nickel Plate, | Allegheny, | Foot seriously injured by coal cars outside of mine. |
| 20, | Toney Ross, | Miner, | 35 | S. | Pan Handle, | Allegheny, | Slightly injured by explosion of gas. |
| 23, | Algier Vanscott, | Miner, | 20 | S. | Laurel Hill No. 1, | Allegheny, | Leg injured by fall of roof coal and slate, necessitating amputation. |
| April 1, | Frank Reveski, | Miner, | 29 | S. | First Pool, | Allegheny, | Hip dislocated by having been struck by dilly trip. |
| 4, | Rosey Fevler, | Miner, | 48 | M. | Pan Handle, | Allegheny, | Foot injured by fall of slate. |
| 4, | Mike Pahaskey, | Miner, | 30 | M. | Pan Handle, | Allegheny, | Injured by coal and slate falling upon him. |
| 26, | Marko Fisher, | Engine driver, | 36 | M | Leasdale, | Allegheny, | Leg broken by flying timbers from a boiler explosion. |
| 26, | Andrew McDaniels, | Laborer, | 34 | M. | Leasdale, | Allegheny, | Seriously injured by a boiler explosion outside of mine. |
| May 14, | A. C. Latimer, | Mine foreman, | 34 | M. | Essen No. 3, | Allegheny, | Face injured by having been struck by a piece of timber. |
| 14, | Alex. Soboruski, | Miner, | 35 | M. | Pan Handle, | Allegheny, | Slightly injured by a fall of coal and slate. |
| 18, | Wasil Flufyi, | Miner, | 24 | .... | Laurel Hill No. 4, | Allegheny, | Seriously injured by a fall of slate. |
| 18, | Thomas Witheral, | Miner, | 65 | M. | Manseld No. 2, | Allegheny, | Foot injured by a fall of slate. |
| 18, | Charles Rodgers, | Miner, | 68 | M. | Mansfield No. 2, | Allegheny, | Hip injured by fall of slate. |
| 27, | John Johnson, | Watchman, | 46 | M. | Mansfield No. 2, | Allegheny, | Collar bone broken and otherwise injured by falling down the screen. |
| 28, | Mattio Dellazia, | Miner, | 40 | M. | Beachmount, | Allegheny, | Injured by fall of slate. |
| June 2, | Fred. Getzel, | Miner, | 23 | S. | Nickel Plate, | Allegheny, | Foot injured by fall of slate. |
| 5, | George Reed, | Miner, | .... | .... | Beadling, | Allegheny, | Injured by fall of slate. |
| 8, | Gerard Lejohn, | Miner, | 40 | S. | Allison, | Washington, | Leg broken by fall of slate. |

TABLE No. 5.—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| 11. | Frank Gravner, | Miner, | 63 | S. | Margerum, | Allegheny, | Seriously injured by fall of slate. |
| 11. | Pat. Callaghan, | Miner, | 54 | S. | Margerum, | Allegheny, | Foot injured by a post falling upon it. |
| June 12. | Albert Orros, | Miner, | 40 | M. | Mansfield No. 2, | Allegheny, | Foot crushed by fall of coal. |
| 14. | J. Ward, | Miner, | 38 | M. | First Pool, | Allegheny, | Leg injured by fall of coal. |
| 17. | Andrew Davidson, | Miner, | 50 | M. | Nickel Plate, | Allegheny, | Foot injured by fall of slate. |
| 21. | Robert Schultz, | Miner, | 50 | M. | First Pool, | Allegheny, | Back seriously injured by fall of slate. |
| 22. | Peter Cremeter, | Miner, | 27 | M. | Allison, | Washington, | Foot injured by fall of roof coal. |
| 23. | William Chisnion, | Miner, | 48 | M. | Nickel Plate, | Allegheny, | Foot injured by fall of slate. |
| 24. | Ernest Weidner, | Machine runner, | 32 | S. | Essen No. 3, | Allegheny, | Foot seriously injured by the cutter chain of a mining machine. |
| 29. | John McDowal, | Miner, | .... | .... | Laurel Hill No. 1, | Allegheny, | Slightly injured by fall of slate. |
| Sept. 24. | John Crooper, | Miner, | 45 | S. | Beadling, | Allegheny, | Leg broken by fall of slate. |
| 29. | Joseph Kluretz, | Miner, | .... | S. | Moon Run, | Allegheny, | Head injured by fall of slate. |
| 30. | Mike Soushack, | Miner, | 38 | M. | Enterprise No. 2, | Washington, | Arm broken by fall of slate. |
| Oct. 6. | John Chapple, | Miner, | 35 | M. | Venture, | Allegheny, | Seriously injured by a fall of coal and slate. |
| 8. | Joe Ganski, | Miner, | 30 | M. | Pan Handle, | Allegheny, | Injured by fall of slate. |
| 11. | Robert Simms, | Miner, | 62 | M. | Idlewood, | Allegheny, | Foot injured by fall of slate, necessitating amputation. |
| 16. | Joe Legreta, | Miner, | 42 | M. | Beadling, | Allegheny, | Leg broken by fall of slate. |
| 19. | John Chalmers, | Miner, | 19 | S. | Beadling, | Allegheny, | Burned about face and hands by an explosion of gas. He passed a danger signal. |
| 22. | Joe Bunta, | Miner, | 23 | S. | Essen No. 2, | Allegheny, | Leg broken by fall of roof coal. |
| 25. | J. C. Gray, | Laborer, | 30 | S. | Venture, | Allegheny, | Foot hurt by a piece of slate falling upon it from a loaded car. |
| 25. | C. Canonge, | Miner, | 30 | M. | Jumbo, | Washington, | Injured by fall of coal. |
| 26. | James Williamson, | Miner, | 27 | M. | Jumbo, | Washington, | Foot injured by fall of slate. |
| 27. | Louis Vidal, | Miner, | 32 | M. | Essen No. 2, | Allegheny, | Leg broken by fall of slate. |
| Nov. 1. | John Mettalick, | Miner, | 30 | M. | Dickson, | Allegheny, | Slightly injured by fall of slate. |
| 6. | Edward Hannish, | | 35 | M. | Manseld No. 2, | Allegheny, | Back injured by fall of roof while riding on a trip of cars. |
| 16. | John Savnor, | Miner, | 25 | M. | Creedmoore, | Washington, | Injured by flying coal from a blast. |
| 22. | John Tott, | Miner, | 30 | S. | Essen No. 3, | Allegheny, | Injured by fall of slate. |
| 23. | John Morris, | Mule driver, | 26 | S. | Mansfield No. 2, | Allegheny, | Foot injured by a coal car passing over it. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 25, | James Donley, ..... | Door boy, ..... | 14 | .... | Laurel Hill No. 1, ..... | Allegheny, ..... | Arm and leg broken; was squeezed between car and side of entry. |
| | 27, | Patrick Melkern, ..... | Miner, ..... | 52 | M. | Mansfield No. 2, ..... | Allegheny, ..... | Leg injured by fall of slate. |
| Dec. | 6, | Chas. Margerello, ..... | Miner boy, ..... | 16 | .... | Walton, ..... | Allegheny, ..... | Foot and leg injured by fall of slate. |
| | 24, | John Tunch, ..... | Miner, ..... | 40 | M. | Jumbo, ..... | Washington, ..... | Burned about face and hands by an explosion of gas. |
| | 27, | Ferdinand Messing, ..... | Mule driver, ..... | 22 | S. | Walton, ..... | Allegheny, ..... | Leg injured by coal cars. |
| | 27, | Timothy Drenin, ..... | Miner, ..... | 30 | S. | Cherry, ..... | Allegheny, ..... | Hurt by a fall of slate; not seriously. |

# Eighth Bituminous District.

(CLEARFIELD, CENTRE AND JEFFERSON COUNTIES.)

Philipsburg, Pa., February 13, 1898.

Hon Jas. W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: I have the honor of presenting to you my third annual report as Inspector of coal mines for the year ending December 31, 1897, as required by article X, section 11, of the Bituminous Mine Laws. The report contains the usual statistical tables relating to the names of companies and location of mines, the total production in net tons of coal, the number of each class of workmen employed in and about the mines, each fatal accident reported fully, together with causes and, where necessary, the manner of averting as far as possible any further occurrence of such accidents. Although there are quite a number of accidents that may be attributed to the carelessness of employes themselves, a new danger, however, shows itself in shape of electric wires, these having caused two deaths during the year, and considerable care will be required to prevent future accidents from this source. Descriptions of these accidents are given in another place.

The mines have been kept in very fair condition as a whole, but there are several cases where the foremen were arbitrary and, instead of putting in force the provisions of the laws, they seemed rather inclined to violate them. It should be the foreman's first aim and object to see that the provisions of the law are observed by himself and the employes under his care, especially where life and limb are in danger, and he is expected to have more knowledge of the dangers that exist. Mention is here made because it often occurs that when investigating an accident, the officials say they had often warned the workmen of the danger, yet did not compel them to more thoroughly guard against it, which, if they had, would be the means of reducing the number of accidents to a minimum. The total production in net tons of coal is slightly less than that of the preceding year, yet the number of fatal accidents is one in excess, while the non-fatal accidents are seven less, which, however, is a very fair showing compared with the average in the State.

There has been considerable improvement made at the mines during the year, but the rapid exhaustion of the Moshannon seam (geologically known as Bed D) is causing quite a number of small mines to be opened in the district to take out the remaining coal which other operators considered valueless years ago, and which some of the larger operators will not attempt to mine to-day, the mining of which causes a rather worse condition to exist owing to it being difficult to properly open a mine having such a small coal area to be worked.

There is still very good coal to be mined, but it will require more permanent equipment and deeper openings to reach the seams, as shown by the accompanying columnar section of the actual coal measures in this locality. The case of the Commonwealth vs. D. D. Jones, as mentioned in 1896 report, was carried to the Superior Court, and that honorable body having reversed the lower court, sustaining the constitutionality of the mine laws, and sending the case back to the lower court, where a verdict was reached in favor of the Commonwealth. A record of Superior Court case is in the hands of the district attorney and in the State Library. The Governor, in his message of 1897, advised the establishing of a Bureau of Mining, which was carried out by the Legislature, and it will no doubt be a valuable addition to the mining industry. I remain,

Very respectfully yours,

JOSEPH KNAPPER,
Inspector.

TABLE A.

Showing the Number of Fatal and Non-Fatal Accidents and Their Causes.

| | Fatal. | Non-Fatal. |
|---|---|---|
| Falls of slate roof, | 3 | 5 |
| Fan engine machinery, | 1 | .. |
| Electric wires with 550 volts, | 2 | .. |
| Falls of coal, | .. | 10 |
| Premature blast, | 1 | .. |
| Mine machinery, | .. | 1 |
| Haulage rope, outside, | .. | 1 |
| Ignition of powder, | .. | 2 |
| Mine cars, | .. | 8 |
| Coal and slate, | .. | 2 |
| Total, | 7 | 29 |

TABLE B.

Showing the quantity of coal mined, coke produced, number of persons employed in and about the mines, number of net tons mined per fatal and non-fatal accident, together with powder consumed, number of days worked, etc.

| | |
|---|---|
| Total number of tons mined, | 3,798,138 |
| Total number of tons shipped, | 3,683,296 |
| Total number of tons of coke shipped, | 23,500 |
| Total number of tons mined per fatal accident, | 542,591 |
| Total number of tons per non-fatal accident, | 130,970 |
| Number of persons employed inside the mines, | 5,866 |
| Number of persons employed outside the mines, | 417 |
| Total number of persons employed in and about the mines, | 6,283 |
| Total number of days worked, | 14,597 |
| Average number of days worked, | 164 1-3 |
| Tons mined per employe, | 604 |
| Kegs of powder consumed, | 22,405 |
| Horses and mules employed, | 693 |
| Steam boilers, | 93 |
| Stationery engines, and locomotives, | 10 |
| Coke ovens, | 106 |
| Number of mines that came under the provisions of the law during the year, | 82 |

Report of Pennsylvania State Hospital.

| | |
|---|---|
| Total number of patients for 1897, | 201 |
| Number male patients, | 172 |
| Number female patients, | 29 |
| Number adults, | 164 |
| Number children, | 37 |
| Number foreigners, | 103 |
| Number English and American, | 98 |

A number of the above foreigners have been naturalized.

| | |
|---|---|
| Average number of daily indoor patients, | 10 |
| Average number of daily outdoor patients, | 7 |

Classifications.

| | |
|---|---|
| Number of miners treated, | 109 |
| Other members of miners' families, | 35 |
| Number of railroad accidents, | 6 |
| Number of fractures of leg and thigh, | 22 |
| Number of fractures of arm, | 27 |

| | |
|---|---|
| Number of fractures of clavicle, | 14 |
| Number of dislocations, | 7 |
| Number of burns, | 12 |
| Number of gun shot wounds, | 4 |
| Number of spinal injuries, | 13 |
| Number of fracured skulls, | 3 |
| Number of major amputations, | 5 |
| Number of minor amputations, | 16 |
| Miscellaneous injuries, | 67 |
| Number of deaths, | 2 |
| Total number of days in hospital, | 3,565 |
| Greatest number of days, one patient, | 319 |
| Average number of days, each patient, | 35 |

Physicians: Dr. Henderson, Dr. Andrews.

Nurses: Miss Phoebe Gibson, Mr. Thos. Crawshaw.

M. A. FISHER,
Superintendent.

## Report of Fatal Accidents During the Year 1897, With Causes and Suggestions.

A fatal accident from an electric wire caused the death of Mike Lopik, Slavish nationality, aged 22 years, and being in this country only three months. He was at work as a miner, in company with an elder person of the same nationality, the latter speaking broken English, in Eureka No. 22 mine, No. 4 drift, first right heading and No. 8 room, on the 4th of March. He had to run a loaded car out of his room about 11 A. M., and place it on the cross heading in front of the room, and, thinking he had time to spare, started to pull a 12-pound T iron rail off the cross heading into his room, but he could not get around the curve, owing to the full car being in the way. Instead of moving the car, he raised one end of the iron rail on the car and the other he put on his left shoulder, going into his room backwards, having his left arm over the rail. When he had pulled the rail around at right angles to the heading it came in contact with a live electric wire, charged with 500 volts, the shock forcing him to the ground and, according to the evidence of his partner, who was in a straight line and only 200 feet away, and who said he did not hear any noise, shows that he was rendered unconscious. Having his arm over the rail, he failed to release himself, thus pulling the rail down on his left breast and falling on the road rail in one-half inch of water, which made a perfect circuit, because the opposite end still rested on the live wire. It was proven by John Burns, the engineer in charge of the generator, that the circuit breaker flew out at 11.05 A. M., and when it was put in again by him, for some unknown reason, the current continued in its proper course. When the engineer and con-

ductor, Henry Gossar, Frenchman, and Willard Williams, American, arrived in first right heading at 11.30 A. M., they met the obstruction of loaded cars, and saw fire flashing from the wire ahead. On investigation, saw the deceased lying on his back in an unconscious condition. They immediately got a piece of wood and removed the rail from his body, but found he was dead, he having been literally roasted on the left side. Had he been an expert electrician he could not have arranged an electrocution with more assurance of results and yet he was ignorant of the danger. This is the first instance of a new danger in this section of the State in the coal mines. It is mentioned in report of this mine and the remedy to be applied.

Accident causing the death of Alex. Pollock, aged 27½ years, mine foreman at Atlantic No. 2 mine, on the 29th of April. About 6.30 A. M. he was in the fan house with his brother, W. C. Pollock, and while there he concluded to oil the engine, and while standing on the slides of engine which stand at an angle of 45 degrees, he attempted to fill the oil cups on cranks of engine, which was running at the time at sixty revolutions per minute, he following the cup with the can, and, at the same time, talking to his brother. He failed to catch the stroke of the engine, the crank came around before he could recover his balance, and struck the bottom of the oil can, causing the spout of the can to be forced into his right eye. He immediately told his brother that his eye was knocked out and before his brother had time to reach him, he fell backward unconscious, a distance of six feet five inches, striking steam pipe and burning the side of his head and neck, which caused paralysis. He remained unconscious until death occurred, on the 2d of May

Joseph Havanic, Slavish nationality, aged 32 years, miner in Mt. Vernon No. 7 mine. On June 17 he and his butty had mined the first cut of coal in turning a room off first left heading; the cut was mined three and one-half feet deep. They prepared a shot and fired it at 8 A. M., and according to his partner's statement, when he called for help he said the deceased had gone back to see the result of the blast, and while in a stooping position, looking under the coal, which had only partly fallen, a stone fell from the roof, striking him on the head and shoulders, causing instant death. The stone weighed from four to five hundred pounds. The day on which the accident occurred was the first shift for the witness to be in that mine, and before the officials had time to learn his name he left for parts unknown, so that all the necessary evidence from an eye witness could not be obtained. It seems that the deceased had taken the stranger in the mine without the knowledge of the officials.

Enice Olsen, aged 50 years, German, miner in Eureka No. 7 mine, was, on the 25th of June, mining a cut of coal in an old room that had

stood idle for years in old Vulcan mine, being connected by No. 6 heading in Eureka 7. He had started that morning to draw the pillar and, on examining the roof before commencing to mine, concluded that the overhanging roof of sandstone and fire clay, right where he had to mine, needed timbering. He set one prop at each end of the stone, which was very uneven on the under side, and two and one-half feet wide, seven feet long and one foot thick. He then consulted his partner, John Guston, asking him if he thought it was safe, and they both finally agreed to set another prop at the opposite end of the stone, but the prop having been set so close to the face and as the line of fracture was unseen by them, being even with the coal face, caused the stone to have the heaviest end hanging outside of where props were set. Olson then lay on his left side and commenced to mine the cut of coal so that they would have coal ready when the track was laid, while his partner was opening a ditch to let some water out. The deceased had mined the cut only three feet long and one and one-half feet deep when the stone fell, striking his shoulder and chest, causing almost instant death. Two other men, who were close by, also testified to the above. The deceased was known as a good, skilful miner, and it is very seldom that I have to report carelessness of miners of this nationality. This accident was unavoidable, and the stone that fell had hung there for several years without being disturbed. The old mine where this accident occurred has a very treacherous roof, as mentioned in the report elsewhere.

The accident in Eureka No. 26 mine, on the 23d of July, which caused the death of David Mosher, Slavish nationality, aged 19 years, and in this country only a few months, is another illustration of the danger from electric wires in mines using electric haulage. It seems that David Mosher and Mike Metzar were mining coal in a room on second left heading and were nearer to face of cross heading than they were to the main heading. That afternoon they fired two shots in succession, which extinguished their lamp and they found several matches which were damp and would not ignite, and they concluded to go into the main heading and get a light from the engineer or conductor of electric locomotive, which they thought would soon be along, thus running the risk of coming in contact with electric wires charged with 500 volts, or of being struck by the locomotive, instead of going to the face of cross heading, where they could hear miners at work and where no wires were on the heading. When near the main heading, Mike Metzar being in the rear, according to his statement, told Mosher to look out for the wires and keep low. A moment after, he heard the latter fall, then creeping after him found him on the main road between the rails, when he himself called for help. The roadman, Wm. Mothersbaugh, came to their rescue, and found Mosher lying on his back and frothing at the mouth. They immediately took

him outside and twenty minutes later he was dead. There were no burns and only a small cut on his head about one-fourth inch long. When I was notified, I requested them to call a doctor. E. Card Edwards, M. D., made an examination and gave his opinion as follows:

"Death, in my opinion, was due to shock received from electrical trolley line cable for the reasons, namely: 'A rigor mortis generally occurs in death due to electrical currents immediately after death, the face is usually bloated and discolored; putrification is very rapid, see Tody Legal Magazine, 5th vol., p. 141, also from the same authority, page 136. Discharges which kill most suddenly, cause the least external injury.'

"Page 137. 'Wounds as though caused by a blunt dagger are not uncommon.'

"Page 138. 'Cases are recorded where no external injury was to be found.'

"Page 141. 'Death is not always instantaneous.'

"Page 137. 'In many cases a marked absence of burning.'

"July 24, 1897. E. Gard Edwards, M. D., Ramey, Pa."

It seems to me that the first part of M. D. opinion does not agree with page 141. The same protection was ordered at this mine as was ordered at Eureka No. 22, and they were busy putting them in place when the accident occurred.

Accident on the 26th of July, causing the death of Thomas Vaughn, miner, aged 62 years, by a fall of roof while he and five others were loading two cars of coal in Atlantic No. 1 mine. The six persons had been working two days cutting over a pillar to take it out, and had made a space in said pillar twenty feet along the pillar and thirteen feet through it, having seven props set. According to the statement of Wm. Vaughan, son of deceased, also Mark Burns, Wm. Burns, Samuel Gallagher, all say they were waiting on cross headings for cars, and, having obtained two, they entered their place to load them, after an absence of twenty-five or thirty minutes. No change having occurred during their absence, and just as they got their cars loaded some one of them heard a piece of coal fall from the face and called for all hands to look out, as they were all together; Thomas Vaughan and a boy being the most distant from a point of safety, made an effort to get out; the boy succeeded in getting out all right, when William Vaughan turned to help his father a stone fell, striking the old man to the ground. The son seeing the roof was going to cave in, left, when the whole space of roof fell, causing the instant death of Thomas Vaughn, covering him completely. It took four hour's work to recover the body. The accident was unavoidable on the workmen's part, but better judgment should have been used in not putting so many men

in one place, especially where pillar withdrawing was being done, as it is impossible to hear any sound of warning made by the weight of strata on the timber before the roof falls. The deceased was a skilled miner, having been in the mines fifty years, the other miners being equally skilled.

Andrew Gowitchie, Slavish miner, at Morrisdale shaft, aged 42 years, was seriously injured by a premature blast on the 2d of August and died at the hospital on the 11th of August. This is the only fatal case that showed gross carelessness of all parties concerned. On the above date, Andrew Powlow and Andrew Gowitchie were driving an airway in Morrisdale shaft, and to the left of said heading a cross heading had been turned, twelve feet from face of airway, and driven in five to six yards, the latter heading being driven by Miles Womer and George Harper. It was shown that on above date, the two parties were each preparing a shot, the Slav a bottom stone shot, the Englishman a coal shot, and the Slav, expecting that his shot would be destroyed by water, requested the other party to let them fire first, which was agreed upon. When all was ready, George Harper waited at the face of his heading to hear the Slav's shot. It seems that Andrew Gowitchie was so excited in firing first that in lighting his squib he applied the lamp flame in beyond the sulphur match, and firing the powder in the squib, which instantly put off the shot before he had time to move. Harper, hinking all was right, but not being able to see for smoke, ignited his shot and ran down the heading, and when the smoke had cleared away they returned and found Gowitchie lying on his side in an unconscious condition, six feet away from his own shot; there was no stone or coal around him. After his death, in the hospital, it was necessary to know to a certainty what caused his death, there being no external marks, but at the post mortem examination it was found that his skull had been fractured right across the top and in line with each ear, giving rise, in the doctor's opinion, to profuse hemorrhage. An old fracture showed itself at side of skull, but the doctors were of the opinion that the last injury alone was the cause of his death.

## Clearfield County Mines.

Acme Slope.—The ventilation and drainage of this mine is in very fair condition except in a few room faces which needed check doors. Improvements since the preceding year consist of sinking a new shaft at the face of the main slope and on left side instead of right, as in the preceding year, and increasing the volume of air 20,750 cubic feet in the workings by not allowing it to come in contact with the broken strata in the old workings before reaching the men. Also, the fan is placed to force the air into the mine instead of exhausting it, as

was the previous method, which has one good effect, as it causes the carbon dioxide given off in the old workings to pass directly into the return and up the slope. The air is conducted in four splits from the downcast shaft, and through the mine to the return, and on my last visit, when in full operation, 40,200 cubic feet of air was measured at bottom of shaft. The improvements were: Sinking a new shaft, 8x8 feet diameter, 107 feet deep, used for ventilation and pumping of water, and extending the system of tail rope haulage used on the slope into four right cross headings. James Jennicks, foreman.

Pump plant, 2 Stockton 10-inch pumps and 1 No. 10 and No. 8 Cameron pumps. The volume of water is steadily increasing. Main slope, 3,600 feet to shaft.

Alexander Mine.—This mine has not yet resumed operations.

Atlantic No. 1 Mine.—When this mine was in full operation an average of 54,800 cubic feet of air was in circulation in four currents, but owing to being in contact with old West Moshannon works, where coal is now being mined by this company, the four currents cannot be permanently maintained all through the mine, but I have found the general condition of the mine good during the year. Additions, new electric pump, Jeanesville type, 4x9 double acting, connected to a five horse power motor, electric, type 18, class 2, speed 1,800 revolutions per minute, made by General Electric Company. At new pumping station, a battery of six cylinder boilers, well housed, has been also added, supplying steam for pump power for Ocean No. 2 and Atlantic No. 1 mine. Benjamin Badman, foreman.

Atlantic No. 2 Mine.—The ventilation and drainage of this mine were kept in good condition during the year, there having been an average of 34,100 cubic feet of air in circulation in four currents. The noticeable difference from 1896 report was a squeeze on one of the right heading pillars while withdrawing them, owing to their having been irregular in thickness and in places very thin. William Delves, foreman.

Baltic Nos. 1 and 3, "D" Seam.—The drainage of this opening has been in poor condition, especially during wet weather, owing to the large number of breaks to the surface, caused by removing the pillars, so that in time of rain the water pours in so suddenly and in such volume that the whole width of haulage way is at times three to four inches deep with water, but it could be improved greatly by maintaining a ditch along the main heading, which has not been done heretofore. A new man has been placed in charge during the last few months and he may improve the defects. A volume of 10,000 cubic feet of air was maintained but not sufficiently circulated in Hudson and Skelenton headings; other places were very fairly ventilated.

"E" Seam Opening.—In case of heavy rains, the drainage is unavoidably deficient owing to the shallow strata over the coal and the constant breaks that are met with, also owing to the seam thirty feet below having been mined out causing the coal and other strata to settle very unevenly, leaving in place what are known as breakers, or large spaces where the coal has dropped below the natural level, and the roof strata is all broken the same as gob falls, which requires skilled workmen to open and maintain haulage ways. It would have been more economical to have taken the upper seam first, but, owing to the lower seam proving most valuable, it seemed natural for this to be first taken out; however, a volume of 20,080 cubic feet of air was in circulation on my last visit. A new shaft has been sunk nearer the working face, which seems cheaper than trying to maintain a good airway, owing to the breakers spoken of. Arthur White, foreman.

Belsena No. 2 Mine, Formerly Sterling No. 1.—The "E" seam opening had 8,960 cubic feet of air circulating on my last visit, the ventilation having been in fair condition. Roads were dry, which was accounted for by their being drained into the old workings in the seam mined out thirty feet below. An opening called Compressor mine, on the "D" seam, was being worked with a few men, but no noticeable current was in circulation. The atmosphere outside was still, and in a few minutes an opening could be made to the surface by knocking a few props out, the strata over the coal being very light, from six to fifteen feet on the crop line. It could not be said that the men were suffering for want of ventilation, but it was not up to the requirements of the law. Paul Hyde, foreman.

Belsena No, 3 Mine, Formerly Old Eureka No. 11, which B. W. C. M. Co. abandoned.—The mine was found in a healthful condition, both as regards ventilation and drainage, but the ventilation had to depend upon natural means and was at times deficient for the eighteen men employed. The heading stumps, or pillars, are being withdrawn, so that it is not expected that the mine will last very long. James McAlarney, foreman.

Belsena No. 4, Formerly Pine Run Mine.—This mine had been shut down for a number of years and went to wreck in the haulage and airways, and it seems there never was an escape way made for use of men in case of emergency. On my visit on July 22, and again on October 21, I notified the operators that they must make a second opening according to article II, section 1 of the Bituminous Mine Law, which notice they immediately complied with, by ordering a route surveyed and they have since informed me that the necessary opening had been made and a furnace put in operation to cause a permanent circulation of air. Roads were fairly well drained on my last visit. Frank Grimes, foreman.

Champion Mine has worked only eight men during the year when in operation, except a few weeks during the early part of the year, but owing to all the marketable coal having been exhausted, it is at present abandoned.

Coaldale No. 3.—This mine is being rapidly exhausted and the solid coal having been removed, the work is now confined to taking out heading and a few room pillars, so that it has been rather difficult to maintain a permanent circulation of air. However, an average of 12,900 cubic feet of air was measured at the outlets, some points having a natural current, others being ventilated by a furnace, and, generally speaking, it has been in fair condition, although the drainage was at times, rather deficient. David Phillips, foreman.

Coaldale No. 5.—This mine, like No. 3, is confined entirely to taking out main and cross heading pillars, and by the time the next annual report is sent in it will be worked out if operated with any regularity; 18,000 cubic feet of air was in circulation by natural means, but at times was poorly circulated in working places. Roads were generally very wet and muddy, but nothing better can be expected until it is finished. Thomas W. Jones, foreman.

Columbia No. 5 Mine.—Has not come under the provisions of the law during the year.

Colorado No. 1 Mine.—A volume of 6,900 cubic feet of air was in circulation on my last visit on the 8th of January, 1897, and the mine was in fair condition, but has since been shut down for an indefinite period to allow the upper seam to be worked with safety. However, the only coal remaining is a portion of the main heading pillars. Foreman, when last working, James Dunsmore.

Colorado No. 2 Mine.—There was an average of 15,870 cubic feet of air circulating, measured at furnace return, divided into two currents through the mine. The ventilation and drainage are, at present, in very fair condition, but the "three left" has been a source of trouble, owing to the partial caving in of the airway. But on my visit in November, I requested, as a remedy, a connection with Glenwood mine, on the main drift of latter, and both companies readily consented, so that the cause of complaint, namely, of insufficient air, according to the foreman's report, is removed. James Gates, foreman.

Colorado No. 3 Mine.—Until the month of August this mine did not come under the provisions of the law, having only eight men employed, but on my visit on November 10 a few men had been added, but the mine having been idle, caused the partial closing of sections of the airway, which resulted in rather insufficient air in one section, which the foreman promised to improve. Drainage was found in good condition. Robert Scense, foreman.

Columbia No. 5.—Like several others worked only a few men the

greater part of the year, so that it did not come under inspection, but in such cases it still takes up my time in going to the mine to ascertain its capacity. A natural current of air was entering the mine of from 2,000 to 4,000 cubic feet, being variable.

Cuba No. 2.—A volume of 11,300 cubic feet of air was measured at upcast shaft, but the volume was rather poorly circulated through the mine rooms owing to check doors not being in place on headings. The mine boss reported insufficient supplies in his report books. The roof around and over the furnace had fallen to a height of eight or nine feet, and has a width of only six feet, which was ordered to be remedied on my last visit. Edward Dawson, foreman.

Decatur No. 1.—A volume of 24,000 cubic feet of air was measured at the furnace return, which was circulating through the mine in two splits. Both the ventilation and drainage were in good condition. John E. Hawkins, foreman.

Decatur No. 2.—This mine has been idle the whole year.

Donegal Mine.—Was under the provisions of the mining law during the months of August and September, and after my visit, and a request from me to build a furnace and make a traveling way, the number of men was reduced from seventeen to four, the operator stating that he would not be justified in going to the expense necessary to make the required improvements. Donald Craig, foreman.

Electric.—This mine has been well drained throughout the year, but owing to the mine being gradually extended, the furnace has insufficient power to cause the necessary volume of air to pass into the faces of headings; the condition of brattice on cross headings, cut holes, as mentioned in '95 report, being built of bone coal, are leaky. However, the operator has promised to sink a new shaft and build a new furnace nearer the face of workings in the near future. Air passing present furnace, 20,475 cubic feet. W. S. Edwards, foreman.

Eureka No. 5.—This mine has been operated very successfully during the year considering the difficulty encountered by the squeeze mentioned in my last report; also, to their having to keep close watch on Old Franklin mine, which stands full of water, and along at line of fault and thirty feet above this Eureka mine. However, every precaution is being taken, and a pillar is left sufficient to keep the two mines distinctly separate. As mentioned in '94 and '96 reports, the company has a fire boss steadily employed to avert any danger from gas, which has not been seen for several years. The company was well rewarded, as on the 9th of March, while the fire boss was going his rounds in the morning, he discovered a very large volume of fire damp in sixteen left heading pillar workings, extending into several

gobs and pillars, so that had a naked lamp preceded the safety lamp in the hands of the fire boss, serious results must have followed. I was notified by Superintendent A. S. R. Richards of the change, and he requested my presence, and it was suggested that the section be worked exclusively with locked safety lamps. One new locomotive boiler has been added at pump shaft. A volume of 45,000 cubic feet of air was circulating in three currents. Thomas D. Forsythe, foreman.

Eureka No. 7.—On my last visit, a volume of 65,000 cubic feet of air was circulating in three currents; the ventilation was fair in all parts except first right heading dip, which the operators promised to improve. Drainage was in fair condition. The ventilation has been entirely changed from the method used in 1896, by using the fan as a force instead of an exhaust. The company is now taking out the standing pillars in old Vulcan mine. Mention was made of the standing body of water being pumped out of the latter mine in 1895 report. The roof in this old mine is generally composed of a mixture of sand stone and fire clay, and with very rough and dangerous surface. One new locomotive boiler has been added to hoisting shaft plant. Thomas Estep, foreman.

Eureka No. 12.—This mine is now working only on pillars in main D cross heading, and it is expected that the coal will be entirely mined out during the next year. The ventilation and drainage were kept in very fair condition during the year. An average of 10,400 cubic feet of air was circulating through the mine in two currents. Thomas Blythe, foreman.

Eureka No. 13.—On my last visit to this mine, October 11, in 2 and 3 west headings the ventilation was rather insufficient, but a promise to improve it was made. In other parts of the mine the ventilation was in fair condition. The rooms were kept dry, but the headings in places were poorly drained. I may here state that the company is not responsible for any deficiency, as the mine is operated by a contractor. M. Blythe, foreman.

Eureka No. 14.—A volume of 21,000 cubic feet of air was measured at face, inlet having been changed on December 14 from exhaust to force fan. On the evening of my visit, the sixth and seventh right heading rooms were smoky, but check doors were ordered to be put up on cross headings and maintained. I have since been notified this has been done which should keep the ventilation in very fair condition for the number of men employed. The drainage was very fair at all points except the rock cut on main heading, which was deficient. William Fitzgerald, foreman.

Eureka No. 16.—This mine was shut down in the latter part of 1896 and the whole of this year, until December, when it was again put

in operation. The airways and ditches were in such a terrible condition when it shut down that it will take some time to put the mine in proper order. Owing to the mine commencing operation so late in the year, it was impossible for me to visit it, but the indications are that it is to be operated on contract.

Eureka No. 18.—When this mine was in operation, the ventilation and drainage were in very fair condition. An average of 28,933 cubic feet of air was measured at furnace, circulated through the mine in three currents. Considerable trouble had been experienced during the year owing to malicious parties having set fire to the tipple on the 2d of April, completely destroying it, together with the scales and cars that were outside. The tipple was rebuilt by the 20th of April, when it was again destroyed by fire. It was completed and was again in operation at the time of my last visit on July 7, showing the determination of the company to keep the mine in operation. James Blade, foreman.

Eureka No. 19.—This mine is contracted from the company by other parties, and like others of a similar character, has not been kept in as good condition as necessary. The fan was running at a speed of 120 revolutions per minute and producing a volume of 20,000 cubic feet of air per minute, which was insufficient for the 185 men employed. On my visit, October 14, the drainage was also deficient in places. I have received word since my last visit that the company will take charge of the mine on the 1st of January, 1898. Adolph Cook, foreman.

Eureka No. 20.—The drainage of this mine has been in poor condition during the year, and at face of main new dip heading, the ventilation was insufficient, but owing to the mine workings being cut up by having so much inferior coal, causing the company to divert their course in the direction of good coal, it was rather difficult to maintain good air at all times. The mine is being rapidly exhausted. The volume of air at the furnace was 26,912 cubic feet per minute. This mine was also operated by a contractor and could have been kept in better condition. E. F. Townsend, foreman; John Tyler, contractor.

Eureka No. 21.—The ventilation of this mine was in three currents, and an average volume of 18,533 cubic feet per minute was measured at the furnace. The air was rather deficient in eighth cross heading, but in other places was very good. Drainage very fair in working places but rather deficient on main haulage places. Strata below coal is soft fire clay. New manway has been made, making two escape ways. William Pollock, foreman.

Eureka No. 22.—A volume of 84,700 cubic feet of air per minute was passing out at the fan and circulated through the mine in four main currents and several out splits. The main headings are becom-

ing so long that it will be necessary to build brattices of brick and mortar to keep them air tight, because at the extreme face of heading it is rather smoky and some difficulty is encountered by the engineers of locomotives opening doors with their engines, which often results in a broken door which cannot, at times, be repaired for several hours, thus cutting off the air from the more extended workings. But, on the whole, the ventilation and drainage were in fair condition. A new danger has shown itself in the shape of live electric wires. It seems impossible to run an electric haulage system unless a naked wire is suspended along haulage way, and as the miner has to bring his car to the cross heading it is necessary for him to work near the wire. An accident from this source occurred on March 4 owing to the miners not knowing the danger of coming in contact with a live electric wire charged with 500 volts. A report is made in accident list of the case referred to. To avert any such accidents in the future, a piece of wood is fastened to the roof on either side of wire, at all crossings and in front of each room, so that should the miner come near the wire he would come in contact with the wood referred to and not strike the wire. It seems to contradict the argument of electrical experts that instead of 500 volts being harmless, it causes nearly instant death under certain conditions. Foremen, Thomas Marshall and John Milsom.

Eureka No. 23.—The ventilation and drainage of this mine were found in good condition during the year, but owing to the coal being reduced in thickness to eighteen and twenty-four inches, and of inferior quality, it was deemed impracticable to mine it, and, consequently, the mine is now abondoned by this company. 25,200 cubic feet of air was measured at furnace return, which was circulated through the mine in three main and several sub currents. Foreman, John Carlan.

Eureka No. 24.—This mine was not in operation until mid-summer and on my visit on October 18 the ventilation was in very good condition. Drainage good, except on local spots. Foreman, John Allen.

Eureka No. 25.—This mine is now indefinitely shut down, all the coal having been taken out except a small portion of main heading pillars near the drift mouth, but on my last visit 2,400 cubic feet of air was measured at furnace, being a natural current and in fair condition for number of men employed. Drainage deficient in places. William Fitzgerald, foreman.

Eureka No. 26.—An unfortunate accident happened in this mine from the same cause as at Eureka No. 22, and the same remedy was applied. The ventilation and drainage were in very fair condition, the air being circulated through the mine in three currents. Electric haulage is in use. John Carlan, foreman.

Fairmount Mine.—On my last visit, November 6, the ventilation in

first and second right headings was deficient and in poor condition compared with the volume measured at the furnace, which averaged 13,440 cubic feet per minute. The defects were pointed out and ordered to be remedied. Drainage was deficient in places. F. P. Burns, foreman.

Gearhart.—Considerable difficulty has been experienced at this mine during the year owing to Lancashire No. 1 mine withdrawing main and cross heading pillars below, and only from twenty to forty feet of strata between them. One section of Gearhart mine had to be abandoned for an indefinite period, and the iron rails and ties taken out for the safety of the men. The ventilation and drainage were kept in fair condition. At present it is only possible to work nine men instead of 60 to 140, as formerly. 9,600 cubic feet of air at furnace circulated in one current. Richard Lobb, foreman.

Glenwood Nos. 1 and 2.—On "D" and "E" seams of coal. The general condition of both these openings was very good during the year, with an average volume of 11,200 and 17,750 cubic feet or air, being in two currents in each opening. Charles Paul, foreman.

Grampian No. 1.—This mine has not been under the provisions of the law at any of my visits during the year, having employed only from three to nine men.

Raybold, formerly Grampian No. 2.—This mine was sold during the year and is now in the hands of a new company. On my last visit, on the 3d of November, 19,000 cubic feet of air were measured at furnace return, circulated through the mine in two currents. The third right heading was rather smoky, and volume of air was deficient, but in other places both ventilation and drainage were in very fair condition. Daniel D. Jones, foreman.

Guion.—This mine commenced operations again and has been under inspection at intervals, employing eight men at times and then again twenty-six men, the former number when any improvements were requested. The mine is being run by contractors, whose idea is to take the coal out without making any improvements. On one of my visits, one of them said there ought to be no mine law, as it was a nuisance; of course, he did not know any better. My objections were to the traveling way, it being a vertical opening, possibly twenty-five feet deep, with a common ladder placed in it in a vertical position for an escape way, which seems to have been the only one since the mine was opened. It is the only one I could find, and as this is the first time it has been in operation since I have been Inspector, I called the contractors' attention to it, and in three days after, the force of men was reduced from nineteen to nine. The ventilation was in fair condition for the number of men employed. A volume of 12,900 cubic feet was measured at furnace in one current. The main

heading drainage was in bad condition. There have been three foremen at different times during the year. David Patrick and George Minns, contractors.

Highland.—This mine has had an average of 4,800 cubic feet of air circulating in one current, but was rather insufficient for the number of men employed. The furnace stack had been destroyed by fire just previous to my last visit, November 5, which would account for some loss of air as it reduced the motive column nearly one-half, as the strata is very light over the coal at this point. Roads were generally dry. M. F. Walker, foreman.

Henderson No. 2.—On my visit, April 14, the furnace was not in operation and scarcely any air in circulation, and I ordered the furnace started at once. On the 2d of July, there were only 1,800 cubic feet of air and C. $C.^2$ black-damp was very noticeable. A request was made that in case of suspension the furnace should be put in operation one day prior to the starting of the mine. A new opening for air and an escape way was ordered to be made in Mason heading, because the place was working down through a long pillar, splitting it, and there was a gob fall on either side, thus affording no airway. The cover being only eight to twelve feet at one point an opening was made to the surface so that the ventilation was satisfactory. In October, 11,000 cubic feet of air was measured at the furnace. The great trouble is that the coal to be taken out is in small blocks or pillars, left along crop line, with strata caved in on either side, so that at the present time the mine is in as good condition as can be expected. John Maurice, Jr., foreman.

Homestead.—Did not come under the provisions of the law during the year, employing only from five to nine men.

Herreford.—Like Homestead, has not done anything worth speaking of.

Imperial.—Ventilation was fair for part of year, but having made a large connection with old Draine mine, in drawing room pillars and also from surface crevices, it has caused the third right and Galbraith heading to have insufficient air, so I suggested to the operator that a new inlet should be made along crop line in Galbraith heading to cause the inlet current to enter that opening, and first pass along solid workings so that the men would get the full benefit of the ventilation. On my last visit 12,900 cubic feet of air was measured at furnace, but as stated before, did not reach the working faces in sufficient volume. Drainage fair. James Dunsmore, foreman.

Jefferson.—The drainage and ventilation were in very fair condition during the year. In January of this year a request was made that some timber on main heading be repaired, which was afterwards done. A volume of 12,360 cubic feet of air was measured at furnace which circulated through the mine in two currents. John C. Johnston, foreman.

Kentuck.—This mine came under the provisions of the law in October and on that visit 3,040 cubic feet of air was in circulation in one current and by natural means, which kept the mine venilation good for the number of men employed. Drainage was also in fair condition. James Fleming, foreman.

Leader No. 1.—On my visit in June the furnace fire was poorly attended, which resulted in the upcast temperature being little in excess of the outside temperature, which rendered the furnace nearly powerless. I directed a constant attendant and some repairs on brattices which I have since been advised has been complied with, but the mine has scarcely been in operation since. An average of 5,220 cubic feet of air was passing out of the return. Roads generally dry. John O'Rorke, foreman.

Leader No. 2.—This operation consists in taking out the main and cross heading pillars and other small pieces of coal that have been abandoned by former operators. It is rather difficult to maintain a permanent current of air. However, the mine has been kept in a healthful condition but the ventilation was unavoidably scattered, owing to the position of the remaining coal to be taken out. John O'Rorke, the foreman of this mine works alternately at this and No. 1.

Lancashire No. 1.—During my visit on the 27th of May, black damp was very prevalent and the volume of air was insufficient to carry it off and keep the workings clear. The foreman was requested to cause a larger volume of air to circulate in the deficient section, and on my visit in November the ventilation was in fair condition. Generally the deficiency existed in third left and first right headings. The first mentioned section was drawing pillars, and had no permanent air route, because when this mine was opened, single heading system seemed to be the only method in this section. However, an average volume of 12,370 cubic feet per minute was passing out the return at furnace. The drainage was in poor condition on main haulage ways, but the working places were mostly dry. Richard Ashcroft, foreman.

Lancashire No. 2.—This mine was not under the provisions of the law after the 25th of June, the force having been reduced to nine men. When visited previous to that time 5,000 cubic feet of air were in circulation in one current by natural means, which kept the ventilation in fair condition for the number of men employed. The drainage was generally in fair condition. The mine is nearly exhausted, and it is not expected that there will be more than nine men employed until it is completely worked out. Matthew Dixon, foreman.

Leland.—On my last visit I noticed that considerable improvement had been made in renewing the leaky wood brattice, which generally speaking has to be renewed every five years. The ventilation was in very fair condition with 34,650 cubic feet of air entering the

mine, and circulated through the workings in two main currents and three subsplits. Drainage was fair. Daniel Campbell, foreman.

Loraine.—This mine has been idle most of the year. On my first three visits the mine had not been in operation a great deal, but on July 23, on "D" seam opening, left drift, the furnace was not burning and there was scarcely any circulation of air. I directed them to light the furnace at once and on calling at the mine late in the afternoon, they complied. The "E" seam drift had 11,200 cubic feet of air passing out at furnace return, circulated in one current through the mine. The roads were fairly dry, kept so by the old workings of the seam, thirty feet below. George Gould, foreman and contractor.

Lane Nos. 1 and 2.—No. 1 "D" seam has been in operation very little during the year, but No. 2, on the "E" seam, worked very fair and had an average of 8,280 cubic feet of air per minute passing out the return at furnace. Ventilation and drainage were in fair condition. One objection to the system in vogue at this mine is that on the cross headings they turn the rooms too near the main heading, having only eleven feet of pillar between it and the main airway in places. This, I called the superintendent's attention to, but he still thinks it sufficient owing to the light cover, which varies from forty-five to fifteen feet. In this case, it may last for a time, but it is bad practice to see how small the pillars can be left, when the same coal aids the output on withdrawing the pillars. Drainage was fair. John McGowan, foreman.

Lenore.—An average of 9,307 cubic feet of air per minute was passing out at the furnace, which kept the headings in fair condition, but at faces of rooms the air was deficient. To improve this condition a substantial furnace is needed, having more power than the present one. The roof in this mine is very soft and full of breaks, caused by the caving in of the strata below, when the Moshannon coal was taken out. The drainage was in fair condition. Charles Rodders, foreman.

Mounty Mine.—This mine has worked only a few men and did not come under the provisions of the law during the year.

Mabel.—A considerable improvement has been made at this mine during the year. I mentioned, in the 1896 report, that the furnace needed to be more substantial or a mechanical ventilator put in, meaning a fan. The company built a new furnace, and, as it was finished in the month of November and since my last visit, I cannot report as to its efficiency, except that the foreman said that it was all that could be desired. A new traveling way has been opened and in the inlet entrance the timbers are six feet wide, and five and one-half feet high in the clear. If the furnace is as efficient as represented, ventilation should be in good condition. Drainage was very fair. Richard Morris, foreman.

Meadow Brook.—A volume of 6,750 cubic feet of air was entering the two inlets and circulating through the mine in one current. General condition of ventilation was very good for the number of men employed. Drainage also fair. Joseph Higham, foreman.

Mapleton.—Has been kept in fair condition as regards ventilation and drainage. An average volume of 7,900 cubic feet of air was passing out at furnace by natural means. Thomas Duggan, foreman.

Morrisdale Shaft.—The generaul rule of the officials of this mine in driving all openings on a straight line is still maintained, the same as indicated in the map published in 1895 report, in spite of the continuous local swamps and changing thickness of coal from five feet to one foot. The roof is very treacherous in places, being a mixture of sand stone and fire clay, which rests on the coal with not a particle of bone coal between them, and generally a "smooth" exists from one to five feet above this, and overlying it is a very hard sand stone; at other places, the sand stone is right on the coal. In other sections a bone coal and slate are resting on the coal, which is generally easy to take care of, and from which quite a number of accidents have occurred. The officers can be commended for their energy in this direction, as there has not been a single fatality from falls of roof, but the accidents have occurred from other causes. One danger that existed was an old shaft and workings standing full of water. The company has no record of the depth of the shaft or the extent of the workings, because it had been opened about the year 1878, when maps were little thought of in this section. The matter was talked over by the officials and myself, when they concluded to pump the water out of the shaft connecting the Morrisdale heading in their mine with it. This has since been done, and they are now busy driving from both places to connect the headings to make a nearer inlet for air and thereby increase the volume by reducing the friction. On my last visit, 60,800 cubic feet of air were passing out at the fan, which circulated through the mine in three main and several split currents. But this volume was not sufficient for the number of men on the day shift, and resulted in the C 4, Bryan, Swallow, McKinley and Lemon headings being insufficiently ventilated. Other places were in very fair condition. There are such a large number of local swamps that it is almost impossible to keep it always well drained, but considering the irregularity of seam it was in very fair condition. Foremen, James Starford, C. H. Milsom and Robert Cole.

Mt. Vernon No. 4.—The ventilation of this mine is in three currents from the bottom of the fan shaft, which during the year was well conducted through the workings, but needed canvas on cross headings to deflect it into the rooms, which were very smoky from the continuous

shot firing. I directed that the necessary changes be made. The roads were very wet and drainage was neglected in places on haulage way. Harry M. McAlarney, foreman.

Mt. Vernon No. 6.—On my last visit, eight left and six right headings off main one were insufficiently ventilated, and I directed that they should be improved by repairing leaky brattices; other places were in fair condition. Drainage was fair in rooms, but there was room for improvement on headings. James S. Campbell, foreman.

Mt. Vernon No. 7.—An average of 14,260 cubic feet of air was entering the two inlets of this mine, and the right section was also in very fair condition, but the left workings near face of main heading had scarcely any circulation owing to the airway at one point having been cut into the heading for several yards, and the division having been filled in with slate to hide the defects and to prevent any person from getting in to see it. A special notice was served upon the contractor to remove the loose material and put in a substantial brattice at once, and in ten days after, I was notified that it had been done and that the air was passing around face of workings before returning to furnace. A new escape way or second opening has been made and the old one abandoned during the year. Foreman and contractor, A. P. Isenberg.

Mt. Vernon No. 8 Shaft.—This mine is full of water and not in operation.

Midvale No. 1.—This mine did not come under the provisions of the law during the year, having only eight men employed.

Midvale No. 2.—Was under the provisions of the law in the early part of the year. A natural current of 2,400 cubic feet of air was in circulation, which was not sufficient for the number of men employed. Drainage also was deficient in places. A notice was given to the operators to put the manway in condition to comply with the law, and to put in a furnace and have it in operation as soon as possible. When the time of notice had expired, they notified me that they had concluded to work with nine men, leaving me no chance to enforce the order, until such time as they may increase their force, providing the necessary changes are not made.

Ocean No. 2.—This mine was worked out and abandoned during the latter part of November, and the pumps and other material taken out. When in operation a volume of 19,200 cubic feet of air was in circulation through the workings. The drainage was deficient in places. John Milsom, foreman.

Pardee No. 2.—This mine had been idle a considerable part of the year, but on my visits 28,000 cubic feet of air was returning to the furnace and 10,000 cubic feet passing around face of main heading, where the miners were at work withdrawing main heading pillars. Both the ventilation and drainage were in good condition. William Dunsmore, foreman.

Parks.—The ventilation produced by a small furnace is fairly well conducted through the mine, but the power of the furnace is insufficient to produce proper ventilation, as it becomes farther extended, but, owing to the coal area being uncertain, caused by numerous faults, the company does not feel justified in enlarging it or sinking a new shaft and building a furnace as was suggested. They have promised to build a new small furnace near No. 2 opening for the present emergency. An average of 6,900 cubic feet of air was returning to the furnace. The roads were generally dry. John Baker, foreman.

Queen, or Leland No. 2.—The average volume of 6,700 cubic feet of air circulating through this mine keeps the ventilation in very fair condition for the number of men employed. The main haulage way was poorly drained; other places were fair. E. Brubaker, foreman.

Reading.—If the furnace was kept going in "E" seam, this mine would be well ventilated. A natural current of 3,240 cubic feet was passing out at the furnace. Roads were generally dry.

"D" seam was poorly ventilated owing to the power of furnace not being confined to the workings, which defect was caused by imperfect brattices. On one occasion, I requested the foreman to improve the condition of brattices, but was informed that it was hard to get the necessary material, but no such report appeared in his report book. In December, I wrote the company that the brattices had been neglected to such an extent that it would pay them to put in a new shaft and furnace; also, stating that they had not previously furnished the necessary material. They replied by stating that the foreman, who also acts as superintendent, had never asked for any material that he did not get. I expect that it will be improved in the near future. C. Maher, foreman.

Sterling No. 2.—Has reduced the force to nine men, so that it did not come under the provisions of the law.

Sterling No. 3.—On my last visit the ventilation was insufficient, owing to a large fall in main airway, but previous to that time it was in fair condition. Drainage was rather deficient on main heading. An average of 10,375 cubic feet of air was measured at furnace return, being conducted through the mine in one current. W. Craig, foreman.

Schwinn No. 1.—This mine did not come under the provisions of the law during the year, employing only a few men.

Schwinn No. 2.—At my request a new shaft has been sunk, and a furnace was directed to be built, but is not yet commenced. The ventilation was deficient during the summer months, and when I directed that some changes be made they reduced the force to nine men. A sufficient natural current is circulating in cold weather.

Hillside, formerly Steiner.—Has not come under the provisions of

the law during the year, having only from four to nine men employed.

Troy Mine.—Only came under the provisions of the law for a few months during the year, and then only for such a short space of time that the operations were again suspended before my visit, but the mine was generally in fair condition. Foreman, David Patrick.

Union.—As reported in 1896, a new furnace was promised, which has been put at the bottom of a small shaft that has since been sunk, which is thirty-five feet deep, with stack thirty-two feet high. And since it has been put in operation, an average volume of 10,215 cubic feet of air was in circulation in two currents through the mine. Drainage was also very fair. Charles E. Henston, foreman.

Webster No. 4.—The ventilation in No. 1 drift was in fair condition, with an average of 27,066 cubic feet per minute circulating in two currents through the mine. The drainage on main heading was rather defective at No. 2 drift; air was rather deficient at face of crop heading, also the drainage on main heading. John Stoker, foreman.

Whiteside No. 1.—Only employed more than nine men for two or three weeks at a time, but was not in operation at any of my visits, usually having eight or nine men at work. Foremen, William Devling and John Farrel during the year.

## Centre County Mines.

Bear Run Mine.—Drift opening on "D" seam. Size of drift was described in 1896 report. The ventilation of this mine was not up to the requirements of the law, but the 5,750 cubic feet of air was fairly circulated through the mine. A substantial furnace ought to be built, but the small coal area the company controls seems to deter the officials from going into any further expense. The present furnace is an ordinary cylinder boiler shell, four feet in diameter and possible six feet long, which rests on the floor of the return airway, with bars in the shell, possibly eighteen inches from the bottom side, which does not at all times produce sufficient air. Drainage was always good. John Quinn, foreman.

Black Diamond.—An average of 7,230 cubic feet of air was in circulation through the mine in one current. The middle heading was rather insufficiently ventilated, but other places were fair, but, as mentioned before, a large area of heading and room pillars are standing, which causes the ventilation to be scattered. The old pillars are rapidly being mined out. The drainage was at all times good. John O'Neil, foreman.

Central.—A volume of 6,000 cubic feet of air was circulating through the workings of this mine at my last visit on June 30. Ventilation and drainage were in fair condition. The mine is now aban-

doned, coal having all been worked out. James Sommerville, foreman.

Electric.—This mine has been well drained throughout the year, but, owing to the workings becoming gradually more extensive, the furnace has insufficient power to cause the necessary volume of air to pass into the face of headings. The condition of brattices on cross heading cut holes were mentioned in '95 report as having been built of bone coal and are leaky. However, the operator has promised to sink a new shaft and build a new furnace nearer the face of workings in the near future. Air passing present furnace, 20,475 cubic feet. W. S. Edwards, foreman.

Ghem.—The ventilation and drainage of this mine were good, except on fourth right heading, in which there was a deficiency of air at face, but by repairing several leaky brattices it could be put in proper condition. Some defects existed on traveling way, which were ordered remedied. I have since received word that they would be attended to; 14,600 cubic feet of air was measured at furnace, which was circulated through the mine in two currents. Samuel Pfoutz, foreman.

Orient.—An average of 9,120 cubic feet of air was circulating through the mine in one current, but was not properly conducted to the working faces. The loss seemed to be caused by surface falls and crevices acting as inlets, and the air passing through the falls to the furnace. I requested that a section of the mine be bratticed off, so as to avert this trouble, and to make a new inlet near face of main heading near a crop line, which they promised to do. Drainage was very fair.

Ophir.—This mine resumed operations on the 16th of August, after several years of suspension, and was in poor condition, the escape way having caved in and the brattices being very leaky; 7,000 cubic feet of air was measured at the furnace, but was insufficiently circulated through the mine, which will take time to improve. On my visit, I issued official notice to withdraw all men in excess of twenty until the escape way was made fit for travel, which was immediately commenced, and I have since been notified of its completion. Another suspension has occurred since my visit in September. John Tait, foreman.

## Jefferson County Mines.

West Eureka No. 1.—Has not been in operation during the year.

West Eureka No. 4.—When this mine was in full operation, 57,400 cubic feet of air passing out at the slope, which kept the greater part of the mine in fair condition. Improvements were: A new pump shaft, 6x6 feet and 70 feet deep. Steam boilers were also added at shaft for a pumping station in main left dip, being 50 horse power, 25 horse power and 10 horse power. Foreman, H. W. Morre.

West Eureka No. 5.—This mine has been in fair condition during the year with an average of 28,133 cubic feet of air circulating through the mine in two main currents. The drainage was fair under existing conditions. A part of this work runs along the line of a large creek but fifty feet away, and a heavy body of water enters the mine through natural fractures in the strata, which is in the dip workings. The proximity of the creek, together with a large number of reserved pieces of coal, makes it rather difficult to maintain airways and ventilation. An idea of the quantity of water handled each minute when the weather is favorable is shown by the running of a No. 12 Cameron pump, which discharges 1,152 gallons per minute. Joseph Williams, foreman.

West Eureka No. 6.—At the face of rock tunnel in this mine a large volume of light carburetted hydrogen gas, or fire-damp, accumulated, the heading having been standing for several months, and the tunnel having taken an up grade for a considerable distance after having passed a heavy dip. The gas had collected at face of heading and the swamp behind it was filled with water. After prospecting the property from the surface with diamond drills, they concluded to make a uniform grade, consequently the water was pumped out and the gas removed. A pump shaft 74 feet deep is being excavated into an escape way for the men. The general condition of this mine has been very fair during the year, with an average volume of 51,616 cubic feet of air in circulation per minute, which was passing through the mine in three main and several sub splits. Thomas Morgan, foreman.

West Eureka No. 10.—Ventilation and drainage were kept in very fair condition during the year, with an average volume of 61,075 cubic feet of air per minute passing out of the exhaust fan. Tail rope haulage is now in use, and the plant consists of two tubular boilers and one pair of coupled engines; the latter were in use at West Eureka No. 2 slope when in operation; they have 12x12 inch cylinders. E. F. Reese, foreman.

West Eureka No. 11.—The drainage in the main heading has been kept in good condition, but on several cross headings it was rather defective in places. Ventilation was very fair, having an average volume of 52,700 cubic feet of air per minute passing out at the furnace, and circulating through the mine in three main and four sub splits. A great deal of work has been done in going through sand rock rolls in some places and at others soft fire clay, where the coal reduced from five feet to a few inches. Daniel Thomas, foreman.

West Eureka No. 12.—The ventilation of this mine has been in very fair condition during the year, with an average volume of 52,080 cubic feet of air in circulation in three currents. The drainage on main heading could have been kept in better condition. James Woods, foreman.

West Eureka No. 13.—This mine has not been in operation during the year, but was kept in condition to ship coal at any time.

Accompanying this report is a columnar section of the coal measures gathered in different sections of this district, taken from actual observations and measurements, which I am enabled to present through the courtesy extended to me by Charles E. Sharpless, mining engineer.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 31 | | | 11'-10" | SLATE WITH | 145.3 | | | | |
| | 76 | 225'-4" | | 3-7" | HARD FIRE CLAY | 146.1 | | D.B | COAL | |
| | 77 | 229'-9" | BOTTOM OF HOLE | 4'-5" | SLATE | | | | | |

COAL IN Alexandria Worked by Thos Blythe is at least 220 feet verticallly from Bed "D" in same hill at Madera Pa.

Lower Bank at Pine Run Coke Ovens is about 210 feet below Bed D at top of plane in same hill

Coal in above diamond drill hole "221-4" below Bed "D" is similar in structure, partings and top to the coal worked on Morgans' Run by Thos Barnes et. al.

Chas E Sharpless

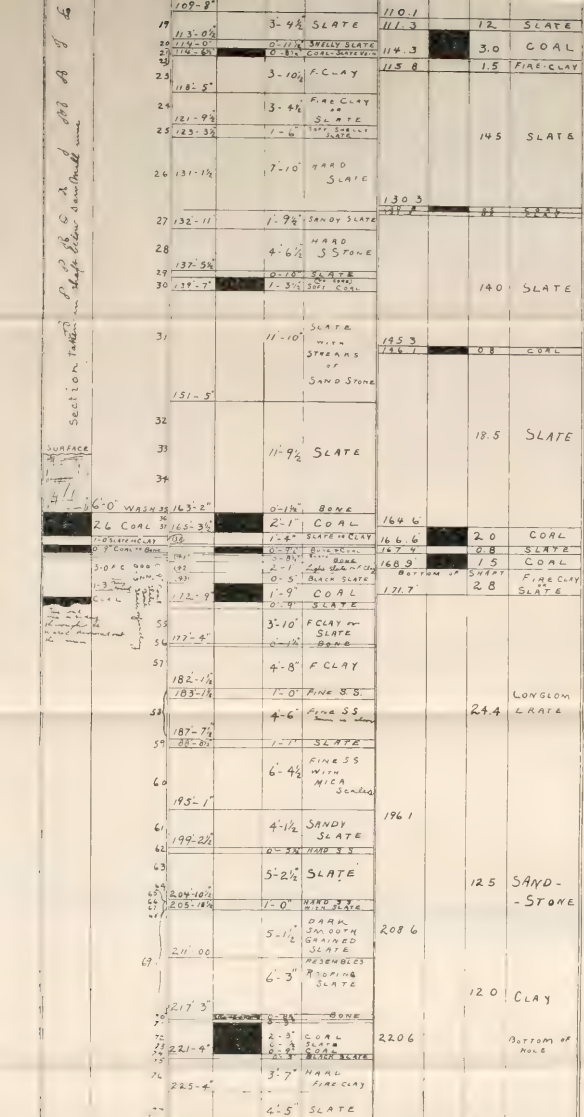
Section 3 By - Chas Slaughter Vert Scale 1" = 8'  11-1-1891

| Frost Hole near Shore | Diamond Drill 1 mi Short | | | Steel Drill Hole with Hunting Shafts | | | |
|---|---|---|---|---|---|---|---|
| | Total depth Below "D" | Thickness of each Stratum | Character of Material | Total depth Below "D" | Thickness of each Stratum | Character of Material |
| Horizon of Bed D | | | | | | |
| | | | | | 198 | Strata Gone |
| | | | | 128 | | Surface |
| 210 Surface | | | | | 195 | Wash |
| | | 23' 00" | Wash | | | |
| | | | | 34 3 | | |
| | | | | 25 3 | | |
| | | | | | 172 | Slate |
| 50-00" | | | | 48 5 | 1' 2" | Coal |
| 54-00" | | 4' 0" | Siliceous Sandy Slate | 54 3 | 46 | Slate |
| 56-7" | | 2' 7" | Sand Stone | 53 6 | 13 | Coal & Slate |
| 61'-3½" | | 4-8½" | Sandy Slate | | | |
| | | 10'-00" | S Stone with Streaks of Slate | | 165 | Slate |
| 71'-3½" | | | | 72 1 | | |
| 77'-6½" | | 6'-1" | Light Slate | | | |
| | | 5'-3½" | Soft Black Slate | | | |
| 88'-9" | | 0-5 | Bone | | | |
| | | 0-8 | Slickensides Slate | | | |
| | | 9½" | Fire Clay | | 380 | Sand Rock |
| 94'-3½" | | | | | | |
| 96'-11" | | 2'-7½" | Hard Sand-Stone | | | |
| 98-2 | | 1'-3 | Light Slate | | | |
| | | 11'-6" | Hard Sand Rock | | | |
| 109'-8" | | | | 110 1 | | |
| 113'-0½" | | 3'-4½" | Slate | 111 3 | 12 | Slate |
| 114'-0" | | 0-11½ | Slicky Slate | | | |
| 117'-6½" | | 0-5½ | Coal & Slate | 114 3 | 3.0 | Coal |
| | | | | 113 8 | 1.5 | Fire Clay |
| 128'-5" | | 3-10½" | F Clay | | | |
| 132'-9½" | | 3'-6½" | Fire Clay & Slate | | 145 | Slate |
| 133 3½ | | 1'-6 | Sandy Slate | | | |
| 131 1½ | | 7'-10 | Hard Slate | | | |
| | | | | 130 3 | | |
| 132'-11 | | 1'-9½" | Sandy Slate | 127 2 | 11 | Coal |
| 137-5½ | | 4'-6½" | Hard S Stone | | | |
| 138'-7" | | 0-10 | Slate | | 140 | Slate |
| | | 1'-3½" | Soft Coal | | | |
| | | 11' 10" | Slate with Streaks of Sand Stone | 105 3 | 0 8 | Coal |
| 151-9" | | | | 104 7 | | |
| | | 1'-9½" | Slate | | 135 | Slate |
| 163'-2" | | 0-11½" | Bone | 164 6 | | |
| 163'-3½" | | 2'-1" | Coal | 164 6 | 2.0 | Coal |
| | | 0-4" | Slate & Clay | 162 6 | 0 8 | Slate |
| | | 0-5" | Bone Coal | 162 1 | 0 5 | Coal |
| | | 0-5 | Black Slate | 160 9 | 1 5 | Coal |
| | | 2'-1" | Light Slate & Coal | Bottom of Seam | Sandy | Fire Clay |
| 172'-9" | | 1'-9" | Coal | 131 7 | 2 8 | Slate |
| | | 0-9 | Slate | | | |
| | | 3'-10" | F Clay & Slate | | | |
| 182'-6" | | 0-11" | Bone | | | |
| | | 4'-8" | F Clay | | | |
| 185'-2½" | | 1'-0" | Fine SS | | | Conglomerate |
| | | 4'-6" | Fine SS | | 244 | Limestone |
| 187'-7½" | | 1'-1" | Slate | | | |
| 192'-8½" | | 6'-4½" | Fine SS with Mica Seams | | | |
| 195'-1" | | | | 196 1 | | |
| | | 4'-11½" | Sandy Slate | | | |
| 199'-2½" | | 0-2½ | Hard SS | | | |
| | | 5'-2½" | Slate | | 125 | Sand-Stone |
| 204'-4½" | | | | | | |
| 205'-4½" | | 1'-0" | Hard Rock | | | |
| | | 5'-1½" | Dark Coarse Grained Slate | 208 6 | | |
| 211'-00 | | | | | | Fragments of Roofing Slate |
| | | 6'-3" | Roofing Slate | | 120 | Clay |
| 217'-3" | | | | | | |
| | | 2'-11" | Bone | | | |
| 221'-9" | | 2'-3" | Coal | 220 6 | | Bottom of Hole |
| | | 0-3 | Slate & Bone | | | |
| 223'-6" | | 1'-7" | Hard Fine Clay | | | |
| 224'-9" | | 1'-3" | Slate | | | |
| | | 6'-3" | Slate | | | |
| 224'-9" | | | Bottom of Hole | | | |

Coal in Alexandria Wood by Tar Kiln is at least 220 feet vertically from Bed "D" in same hill at Madrid Pa.

Former Bench at Pine Run Coke Ovens is about 210 feet below Bed "D" at Pa Line in same hill

Coal in above diamond drill hole 221.9 Either Bed A or similar in structure geology and dip. Bed "A" Coal is similar in Morgan's Run (Pa) Section 10 as noted in Morgan's Run (Chas S Slaughter)




Alexandria Worked by Hon Blythe on at least 220 feet vertically from Bed D in same hill at Modena Pa.

Power Co at Penn Coke Coke is struck 210 feet below Bed D at 136 ft slope in same hill

Core on 2 one thousand drill hole 22.4 Edgar Bed D 2 similar in structure perhaps as to its coal

TABLE No. 1.—Showing Location, etc., of Collieries in the Eighth Bituminous Mine District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Acme, | O. P. Jones, | Clearfield, | Jas. Jenninks, | Philipsburg. |
| Alexandra, | Thos. Blythe, | Clearfield, | Thos. Blythe, | Madera. |
| Atlantic No. 1, | Berwind White Coal Mining Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Atlantic No. 2, | Berwind White Coal Mining Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Baltic Nos. 1 and 3, | Baltic Coal Company, | Clearfield, | T. J. Slinger, | Philipsburg. |
| Bear Run, | Wilson Freeman Coal Company, | Centre, | John Quinn, | Houtzdale. |
| Black Diamond, | R. A. Jackson, | Centre, | R. A. Jackson, | Osceola Mills. |
| Belsena No. 1, | Belsena Coal Mining Company, | Clearfield, | J. C. Curran, | Houtzdale. |
| Belsena No. 3, | Belsena Coal Mining Company, | Clearfield, | J. C. Curran, | Houtzdale. |
| Belsena No. 4, | Belsena Coal Mining Company, | Clearfield, | J. C. Curran, | Houtzdale. |
| Coaldale No. 3, | O. P. Jones, | Clearfield, | D. R. Philips, | Philipsburg. |
| Coaldale No. 5, | O. P. Jones, | Clearfield, | T. W. Jones, | Philipsburg. |
| Colorado No. 1, | Bloomington Coal Company, | Clearfield, | Alex. Dunsmore, | Philipsburg. |
| Colorado No. 2, | Elsworth & Dunham, | Clearfield, | E. H. Elsworth, | Philipsburg. |
| Colorado No. 3, | Elsworth & Dunham, | Clearfield, | E. H. Elsworth, | Philipsburg. |
| Columbia No. 5, | J. L. Mitchell, | Clearfield, | J. H. Crain, | Osceola Mills. |
| Cuba No. 2, | J. Stratton & Bros., | Clearfield, | John Stratton, | Philipsburg. |
| Decatur No. 1, | John Nuttall & Co., | Clearfield, | Geo. McGaffey, | Philipsburg. |
| Decatur No. 2, | John Nuttall & Co., | Clearfield, | Geo. McGaffey, | Philipsburg. |
| Donegal, | P. Gallagher, | Clearfield, | P. Gallagher, | Osceola Mills. |
| Electric, | Thos. Heims, | Centre, | P. Gallagher, | Osceola Mills. |
| Eureka No. 5, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 7, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 12, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 13, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 14, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 16, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 18, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 19, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 20, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 21, | Berwind White Coal Company, | Centre, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 22, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 23, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 24, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 25, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Eureka No. 26, | Berwind White Coal Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Fairmount, | Morris Liveright, | Clearfield, | Henry Liveright, | Osceola Mills. |
| Ghem, | Ghem Coal Company, | Centre, | Sam'l Pfoutz, | Osceola Mills. |
| Gearhart, | T. J. Lee & Co., Limited, | Clearfield, | Thos. J. Lee, | Philipsburg. |
| Glenwood Nos. 1 and 2, | William Morris & Co., | Clearfield, | C. Campbell, | Philipsburg. |
| Grampian No. 1, | Lobb Bros. & Co., | Clearfield, | John Lobb, | Grampian. |
| Grampian No. 2,* | Lobb Bros. & Co., | Clearfield, | John Lobb, | Grampian. |
| Guion, | Sandford & Duncan, | Clearfield, | Wm. P. Duncan, | Philipsburg. |
| Highland, | O. P. Jones, | Clearfield, | M. F. Walker, | Philipsburg. |
| Henderson No. 2, | Wm. Gould, | Clearfield, | Wm. Gould, | Brisbin. |
| Homestead, | Sital Reese, | Clearfield, | Silas Reese, | Philipsburg. |

TABLE No. 1.—Continued.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Herreford, | D. H. Hughes, | Clearfield, | D. H. Hughes, | 931 Chestnut street, Philadelphia. |
| Imperial, | J. Bennet Philips, | Clearfield, | Jas. Fleming, | Philipsburg. |
| Jefferson, | Adams & Co., | Clearfield, | Geo. B. Friday, | Philipsburg. |
| Kentuck, | Philipsburg Bituminous Coal Company, | Clearfield, | Jas. Fleming, | Philipsburg. |
| Klondyke, | Chas. W. Runk, | Clearfield, | Chas. W. Runk, | Philipsburg. |
| Leader No. 2, | Richard Hughes & Son, | Clearfield, | H. M. Hughes, | Osceola Mills. |
| Leader No. 3, | Richard Hughes & Son, | Clearfield, | H. M. Hughes, | Osceola Mills. |
| Lancashire No. 1, | Thos. Barnes & Bro., | Clearfield, | Thos. Barnes, | Philipsburg. |
| Lancashire No. 2, | Thos. Barnes & Bro., | Clearfield, | Thos. Barnes, | Philipsburg. |
| Leland No. 1, | Cambria Coal Mining Company, | Clearfield, | Elij. Brubaker, | Smoke Run. |
| Leland No. 2, | Cambria Coal Mining Company, | Clearfield, | Lewis & Sons, | Smoke Run. |
| Loraine, | Rearkirk Bros. & Co., | Clearfield, | Geo. Gould, | Brisbin. |
| Lane Nos. 1 and 2, | F. C. Todd & Co., | Clearfield, | Fred. C. Todd, | Philipsburg. |
| Lenore, | T. C. Heimes & Co., | Clearfield, | Thos. C. Heims, | Osceola Mills. |
| Morann, | S. J. Mountz, | Clearfield, | S. J. Mountz, | Morran. |
| Mabel, | Morrisdale Coal Mining Company, | Clearfield, | Jas. Heading, | Morrisdale Mines. |
| Meadowbrook, | H. C. Cook & Co., | Clearfield, | H. C. Cook, | Philipsburg. |
| Mapleton, | P. Gallagher, | Clearfield, | P. Gallagher, | Osceola Mills. |
| Morrisdale Shaft and No. 4, | Morrisdale Coal Mining Company, | Clearfield, | Jas. Heading, | Morrisdale Mines. |
| Moshannon, | Chas. H. Rowland, | Clearfield, | Chas. H. Rowland, | Houtzdale. |
| Strachan, | John Stradian, | Clearfield, | John Strachan, | Philipsburg. |
| Mt. Vernon No. 4, | United Collieries Company, | Clearfield, | Thos. C. Whitehead, | Houtzdale. |
| Mt. Vernon No. 6, | United Collieries Company, | Clearfield, | Thos. C. Whitehead, | Houtzdale. |
| Mt. Vernon No. 7, | United Collieries Company, | Clearfield, | Thos. C. Whitehead, | Houtzdale. |
| Mt. Vernon No. 8, | United Collieries Company, | Clearfield, | Thos. C. Whitehead, | Houtzdale. |
| Midvale No. 1, | Lobb & Gould, | Clearfield, | Geo. Lobb, | Brisbin. |
| Midvale No. 2, | Lobb & Gould, | Clearfield, | Geo. Lobb, | Brisbin. |
| Orient, | Blair Bros., | Centre, | C. F. Blair, | Tyrone. |
| Ocean No. 2, | Berwind White Coal Mining Company, | Clearfield, | A. S. R. Richards, | Osceola Mills. |
| Ophir, | Ophir Coal Company, | Centre, | Jacob Swires, | Philipsburg. |
| Pardee No. 2, | Bloomington Coal Company, | Clearfield, | Wm. Dunsmore, | Philipsburg. |
| Phoenix, | M. Liveright, | Centre, | Henry Liveright, | Osceola Mills. |
| Parks, | Harbison & Walker Co., | Clearfield, | H. M. Kurtz, | Woodland. |
| Reading, | Penn Iron Company, | Clearfield, | C. Maher, | Osceola Mills. |
| Sterling No. 2, | M. & F. Craig & Bros., | Clearfield, | Michael Craig, | Brisbin. |
| Sterling No. 3, | M. & F. Craig, | Clearfield, | Michael Craig, | Brisbin. |
| Schwinn, | Henry Schwinn, | Clearfield, | Henry Schwinn, | Houtzdale. |
| Schwinn, | Henry Schwinn, | Clearfield, | Henry Schwinn, | Houtzdale. |
| Hillside, formerly Steiners, | Steiner Coal Company, | Centre, | C. T. Fryberger, | Philipsburg. |
| Summit, | Summit Coal and Coke Company, | Jefferson, | Isaac Smith, | Winslow. |
| Troy, | Morrisdale Coal Mining Company, | Clearfield, | Jas. Heading, | Morrisdale Mines. |
| Union, | Brown & Dwyer, | Clearfield, | A. S. Brown, | Osceola Mills. |
| West Eureka No. 1, | Berwind White Coal Company, | Jefferson, | A. J. Cook, | Horatio. |
| West Eureka No. 4, | Berwind White Coal Company, | Jefferson, | A. J. Cook, | Horatio. |
| West Eureka No. 5, | Berwind White Coal Company, | Jefferson, | A. J. Cook, | Horatio. |

| | | | | | |
|---|---|---|---|---|---|
| West Eureka No. 6, ..... | Berwind White Coal Company, ..... | Jefferson, ..... | A. J. Cook, ..... | Horatio. |
| West Eureka No. 10, ..... | Berwind White Coal Company ..... | Jefferson, ..... | A. J. Cook, ..... | Horatio. |
| West Eureka No. 11, ..... | Berwind White Coal Company, ..... | Jefferson, ..... | A. J. Cook, ..... | Horatio. |
| West Eureka No. 12, ..... | Berwind White Coal Company, ..... | Jefferson, ..... | A. J. Cook, ..... | Horatio. |
| West Eureka No. 13 ..... | Berwind White Coal Company, ..... | Jefferson, ..... | A. J. Cook, ..... | Horatio. |
| Webster No. 4, ..... | Bulah Coal Company, Limited, ..... | Clearfield, ..... | James Minds, ..... | Ramey. |
| Whiteside No. 1, ..... | Simindiger, Berus & Co., ..... | Clearfield, ..... | Michael Burns, ..... | Brisbin. |

* Name changed to Raybold.

TABLE No. 2.—Gives the total number of tons of coal mined and tons of coke produced in each Colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Eighth Bituminous District, for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acme, | Clearfield, | 120,720 | ..... | 650 | 276 | 119,794 | 242 | 181 | ..... | 1 | 860 | ..... | 5 | 13 | ..... | ..... |
| Atlantic No. 1, | Clearfield, | 215,299 | ..... | 3,789 | ..... | 211,510 | 288 | 246 | 1 | 1 | 432 | ..... | 8 | 15 | 3 | ..... |
| Atlantic No. 2, | Clearfield, | 116,864 | ..... | 1,404 | ..... | 115,460 | 233 | 121 | 1 | 1 | ..... | ..... | 6 | 15 | ..... | ..... |
| Baltic Nos. 1 and 3, | Clearfield, | 76,365 | ..... | ..... | 150 | 76,215 | 249 | 139 | ..... | 2 | 700 | ..... | ..... | 21 | ..... | ..... |
| Bear Run, | Clearfield, | 10,684 | ..... | 20 | ..... | 10,664 | 160 | 37 | ..... | ..... | 59 | ..... | ..... | 3 | ..... | ..... |
| Black Diamond, | Centre, | 29,880 | ..... | ..... | 7,380 | 22,500 | 207 | 56 | ..... | ..... | 240 | ..... | ..... | 10 | ..... | ..... |
| Belsena No. 1, | Clearfield, | 6,334 | ..... | ..... | 54 | 6,280 | 171 | 33 | ..... | ..... | 40 | ..... | ..... | 5 | ..... | ..... |
| Belsena No. 3, | Clearfield, | 10,697 | ..... | ..... | 5 | 10,692 | 176 | 23 | ..... | ..... | 30 | ..... | ..... | 2 | ..... | ..... |
| Belsena No. 4, | Clearfield, | 8,867 | ..... | ..... | 25 | 8,842 | 198 | 17 | ..... | ..... | 30 | ..... | ..... | 2 | ..... | ..... |
| Coaldale No. 3, | Clearfield, | 29,685 | ..... | 318 | 85 | 29,282 | 163 | 53 | ..... | 1 | 280 | ..... | 2 | 8 | ..... | ..... |
| Coaldale No. 5, | Clearfield, | 14,690 | ..... | ..... | 75 | 14,615 | 200 | 25 | ..... | ..... | 70 | ..... | ..... | 5 | ..... | ..... |
| Colorado No. 1, | Clearfield, | 2,695 | ..... | ..... | ..... | 2,695 | 35 | 33 | ..... | ..... | 12 | ..... | ..... | 5 | ..... | ..... |
| Colorado No. 2, | Clearfield, | 34,022 | ..... | ..... | ..... | 34,022 | 183 | 58 | ..... | 1 | 300 | ..... | ..... | 6 | ..... | ..... |
| Colorado No. 3, | Clearfield, | 4,060 | ..... | ..... | ..... | 4,060 | 87 | 15 | ..... | ..... | 50 | ..... | 5 | 6 | ..... | ..... |
| Columbia No. 5, | Clearfield, | 4,311 | ..... | ..... | ..... | 4,311 | 179 | 9 | ..... | ..... | 35 | ..... | ..... | 1 | ..... | ..... |
| Cuba No. 2, | Clearfield, | 13,010 | ..... | ..... | 100 | 12,910 | 173 | 48 | ..... | ..... | 89 | ..... | ..... | 4 | ..... | ..... |
| Central, | Clearfield, | 13,274 | ..... | ..... | ..... | 13,274 | 124 | 23 | ..... | ..... | 65 | ..... | ..... | 2 | ..... | ..... |
| Decatur No. 1, | Clearfield, | 13,996 | ..... | ..... | 296 | 13,700 | 39 | 72 | ..... | ..... | ..... | ..... | ..... | 16 | ..... | ..... |
| Donegal, | Clearfield, | 1,106 | ..... | ..... | ..... | 1,106 | 40 | 12 | ..... | ..... | 25 | ..... | ..... | 1 | ..... | ..... |
| Electric, | Centre, | 40,275 | ..... | ..... | ..... | 40,275 | 211 | 80 | ..... | ..... | 150 | ..... | ..... | 6 | ..... | ..... |
| Eureka No. 5, | Clearfield, | 184,077 | ..... | 4,557 | ..... | 179,520 | 279 | 232 | ..... | 2 | 203 | ..... | 7 | 38 | ..... | ..... |
| Eureka No. 7, | Clearfield, | 100,578 | ..... | 2,521 | ..... | 98,057 | 230 | 160 | 1 | ..... | 225 | ..... | 4 | 22 | ..... | ..... |
| Eureka No. 12, | Clearfield, | 38,563 | ..... | ..... | ..... | 38,563 | 284 | 40 | ..... | ..... | 310 | ..... | ..... | 3 | ..... | ..... |
| Eureka No. 13, | Clearfield, | 101,287 | ..... | ..... | ..... | 101,287 | 265 | 133 | ..... | ..... | 550 | ..... | 1 | 10 | ..... | ..... |
| Eureka No. 14, | Clearfield, | 24,809 | ..... | ..... | ..... | 24,809 | 70 | 81 | ..... | ..... | 147 | ..... | 1 | 8 | ..... | ..... |
| Eureka No. 16, | Clearfield, | 2,720 | ..... | ..... | ..... | 2,720 | 13 | 87 | ..... | ..... | 12 | ..... | 1 | 12 | ..... | ..... |
| Eureka No. 18, | Clearfield, | 55,007 | ..... | 235 | ..... | 54,772 | 146 | 94 | ..... | 1 | 115 | ..... | ..... | 19 | ..... | ..... |
| Eureka No. 19, | Clearfield, | 120,681 | ..... | 495 | ..... | 120,186 | 268 | 188 | ..... | 1 | 500 | ..... | 1 | 20 | ..... | ..... |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eureka No. 20, | Clearfield, | 58,684 | | 552 | | 58,132 | 264 | 88 | | 1 | 290 | | | 9 | | | |
| Eureka No. 21, | Clearfield, | 56,400 | | 263 | | 56,137 | 248 | 78 | | | 441 | | | 14 | | | |
| Eureka No. 22, | Clearfield, | 257,649 | | 1,668 | | 255,981 | 271 | 339 | 1 | 2 | 978 | | 3 | | 4 | | |
| Eureka No. 24, | Clearfield, | 12,814 | | 178 | | 12,636 | 75 | 44 | | | | | 1 | 5 | | | |
| Eureka No. 25, | Clearfield, | 13,417 | | | | 13,417 | 221 | 18 | | | 60 | | | 4 | | | |
| Eureka Nos. 23 and 26, | Clearfield, | 44,453 | | 969 | | 43,484 | 205 | 110 | 1 | 4 | 449 | | 3 | | 2 | | |
| Fairmount, | Clearfield, | 14,886 | | | | 14,886 | 160 | 32 | | | 111 | | | 3 | | | |
| Ghem, | Centre, | 16,514 | | | 27 | 16,487 | 141 | 31 | | | 50 | | | 4 | | | |
| Gearhart, | Clearfield, | 40,216 | | 100 | 100 | 40,016 | 135 | 76 | | | 150 | | | 5 | | | |
| Glenwood Nos. 1 and 2, | Clearfield, | 44,929 | | | 100 | 44,829 | 153 | 57 | | | 97 | | | 8 | | | |
| Guion, | Clearfield, | 9,258 | | | 58 | 9,200 | 153 | 16 | | | 50 | | | 4 | | | |
| Highland, | Clearfield, | 15,630 | | | 474 | 15,156 | 224 | 27 | | | 65 | | | 4 | | | |
| Henderson No. 2, | Clearfield, | 11,979 | | | 400 | 11,579 | | 29 | | | 40 | | | 3 | | | |
| Imperial, | Clearfield, | 22,995 | | | | 22,995 | 130 | 74 | | | 200 | | | 10 | | | |
| Jefferson, | Clearfield, | 24,320 | | 153 | | 24,167 | 140 | 54 | | | 100 | | | 5 | | | |
| Kentuck, | Clearfield, | 2,671 | | | 150 | 2,521 | 26 | 26 | | | 10 | | | 3 | | | |
| Klondyke, | Clearfield, | 782 | | | 74 | 708 | 65 | 6 | | | 8 | | | 1 | | | |
| Leader No. 2, | Clearfield, | 15,000 | | | 180 | 14,820 | 180 | 25 | | | 100 | | | 6 | | | |
| Leader No. 3, | Clearfield, | | | | | | | | | | | | | | | | |
| Lancashire No. 1, | Clearfield, | 101,415 | | | 900 | 100,515 | 225 | 128 | | 2 | 850 | | | 22 | | | |
| Lancashire No. 2, | Clearfield, | 17,493 | | | | 17,493 | 119 | 51 | | | 120 | | | 5 | | | |
| Leland No. 1, | Clearfield, | 33,666 | | | 200 | 33,466 | 200 | 60 | | | | | 1 | 6 | | | |
| Leland No. 2, | Clearfield, | 11,866 | | | | 11,866 | 200 | 11 | | | | | | 2 | | | |
| Loraine, | Clearfield, | 7,348 | | | | 7,348 | 100 | 37 | | | 50 | | | 3 | | | |
| Lane Nos. 1 and 2, | Clearfield, | 40,440 | | | 175 | 40,265 | 172 | 69 | | | | | | 6 | | | |
| Lenore, | Clearfield, | 21,475 | | | | 21,475 | 211 | 54 | | | 85 | | | 6 | | | |
| Morann, | Clearfield, | 7,000 | | | 53 | 6,647 | 125 | 16 | | | | | | 2 | | | |
| Mabel, | Clearfield, | 24,341 | | | 100 | 24,241 | 207 | 46 | | | 162 | 200 | | 5 | | | |
| Meadowbrook, | Clearfield, | 9,890 | | | 360 | 9,530 | 189 | 28 | | | 90 | | | 2 | | | |
| Mapleton, | Clearfield, | 16,280 | | | | 16,280 | 240 | 24 | | | 200 | | | 6 | | | |
| Morrisdale Shaft, | Clearfield, | 437,558 | 23,500 | 5,155 | 2,352 | 398,812 | 278 | 600 | 1 | 5 | 3,906 | 1,200 | 7 | 50 | | 106 | |
| Morrisdale No. 4, | Clearfield, | 597 | | | | 597 | 14 | 9 | | | 6 | 10 | | 1 | | | |
| Moshannon, | Clearfield, | 200 | | | | 200 | | 13 | | | 5 | | | 1 | | | |
| Mt. Vernon No. 4, | Clearfield, | 10,224 | | 720 | | 9,504 | 162 | 40 | | | 206 | 115 | 2 | 3 | | | |
| Mt. Vernon No. 6, | Clearfield, | 48,954 | | 3,600 | | 45,354 | 195 | 105 | | | 420 | 610 | 7 | 16 | | | |
| Mt. Vernon No. 7, | Clearfield, | 25,928 | | | | 25,928 | 199 | 51 | 1 | | 310 | 206 | | 3 | | | |
| Midvale No. 1, | Clearfield, | 7,637 | | | 200 | 7,437 | 200 | 16 | | | 10 | | | 1 | | | |
| Midvale No. 2, | Clearfield, | 4,200 | | | | 4,200 | 150 | 14 | | | 25 | | | 2 | | | |
| Orient, | Centre, | 39,895 | | | | 39,895 | 249 | 40 | | 1 | 300 | | | 9 | | | |
| Ocean No. 2, | Clearfield, | 52,336 | | 1,867 | | 50,469 | 236 | 80 | | | | | 8 | 28 | | | |
| Ophir, | Centre, | 10,000 | | | 300 | 9,700 | 70 | 82 | | | | | | 5 | | | |
| Pardee No. 2, | Clearfield, | 24,542 | | | | 24,542 | 146 | 48 | | | 116 | | | 4 | | | |
| Phoenix, | Centre, | 16,612 | | | | 16,612 | 303 | 30 | | | 79 | | | 6 | | | |
| Parks, | Clearfield, | 9,893 | | 9,893 | | | 300 | 26 | | | | | | 2 | | 1 | |
| Reading, | Clearfield, | 10,166 | | | | 10,166 | 131 | 3 | | 1 | 72 | | | 3 | | | |
| Strachan, | Clearfield, | 5,000 | | | | 5,000 | 90 | 17 | | | 27 | | | 2 | | | |
| Sterling No. 3, | Clearfield, | 13,085 | | | 35 | 13,050 | 130 | 31 | | | 80 | | | 1 | | | |
| Schwinn Nos. 1, 2, 3 and 4, | Clearfield, | 15,000 | | 1,380 | 700 | 12,920 | 250 | 43 | | | 100 | 25 | | 7 | | | |
| Summit, | Jefferson, | 8,427 | | 8,427 | | | 287 | 11 | | | 89 | | | 2 | | | |
| Troy, | Clearfield, | 3,537 | | | 25 | 3,512 | 70 | 15 | | | 40 | | | 2 | | | |
| Union, | Clearfield, | 18,200 | | | | 18,200 | 165 | 51 | | | | | | 3 | | | |
| West Eureka No. 4, | Jefferson, | 70,029 | | 4,777 | | 65,252 | 123 | 120 | | | 800 | 600 | 8 | 20 | | | |
| West Eureka No. 5, | Jefferson, | 84,414 | | 5,100 | | 79,314 | 140 | 121 | | | 1,000 | 20 | 8 | 14 | | | |
| West Eureka No. 6, | Jefferson, | 89,918 | | 6,808 | | 83,110 | 135 | 106 | | | 1,000 | 1,600 | 5 | 10 | | | |
| West Eureka No. 10, | Jefferson, | 165,095 | | 784 | 481 | 163,830 | 225 | 187 | | | 1,300 | 100 | 3 | 26 | | | |

TABLE NO. 2.—Continued.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs of powder used. | Number of pounds of dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| West Eureka No. 11, | Jefferson, | 136,350 | ..... | ..... | 613 | 135,737 | 223 | 142 | ..... | ..... | 1,100 | 50 | ..... | 17 | ..... | ..... |
| West Eureka No. 12, | Jefferson, | 70,318 | ..... | ..... | ..... | 70,318 | 201 | 64 | ..... | ..... | 600 | 25 | ..... | 8 | ..... | ..... |
| Webster No. 4, | Clearfield, | 59,411 | ..... | 270 | 229 | 58,912 | 151 | 172 | ..... | 2 | 363 | 100 | 1 | 14 | ..... | ..... |
| Whiteside No. 1, | Clearfield, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Raybold, | Clearfield, | 12,425 | ..... | 28 | 70 | 12,327 | 82 | 66 | ..... | ..... | 166 | ..... | ..... | 2 | ..... | ..... |
| Total, | | 3,798,138 | 23,500 | 66,681 | 17,102 | 3,683,296 | 14,597 | 6,283 | 7 | 29 | 22,405 | 4,866 | 93 | 690 | 10 | 106 |

TABLE No. 3—Showing the number of each class of Employes at each Colliery in the Eighth Bituminous District, during the year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Acme | 1 | ..... | 120 | 29 | 8 | 3 | 5 | 166 | 1 | 2 | 4 | 2 | 5 | 1 | 15 | 181 |
| Atlantic No. 1 | 1 | ..... | 207 | 3 | 4 | 4 | 12 | 231 | ..... | 3 | 3 | ..... | 4 | 3 | 15 | 246 |
| Atlantic No. 2 | 1 | ..... | 103 | 1 | 5 | ..... | ..... | 115 | ..... | 1 | 2 | 1 | ..... | 2 | 6 | 121 |
| Baltic Nos. 1 and 3 | 1 | ..... | 119 | ..... | 7 | 3 | 1 | 131 | 1 | 1 | ..... | 1 | 3 | 2 | 8 | 139 |
| Bear Run | 1 | ..... | 34 | ..... | 1 | ..... | ..... | 36 | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 37 |
| Black Diamond | 1 | ..... | 40 | ..... | 3 | 4 | 3 | 51 | ..... | 1 | ..... | ..... | 2 | 2 | 5 | 56 |
| Belsena No. 1 | 1 | ..... | 27 | ..... | 1 | ..... | ..... | 30 | ..... | ..... | ..... | ..... | 1 | 2 | 3 | 33 |
| Belsena No. 3 | 1 | ..... | 20 | ..... | 1 | ..... | ..... | 22 | ..... | ..... | ..... | 1 | ..... | ..... | 1 | 23 |
| Belsena No. 4 | 1 | ..... | 14 | ..... | 1 | ..... | ..... | 16 | ..... | ..... | ..... | 1 | ..... | ..... | 1 | 17 |
| Coaldale No. 2 | 1 | ..... | 30 | 8 | 5 | 1 | 2 | 47 | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 53 |
| Coaldale No. 5 | 1 | ..... | 17 | 3 | 2 | ..... | ..... | 23 | 1 | ..... | ..... | ..... | ..... | 1 | 2 | 25 |
| Colorado No. 1 | 1 | ..... | 32 | 3 | 2 | ..... | 2 | 39 | ..... | ..... | ..... | ..... | ..... | 3 | 3 | 42 |
| Colorado No. 2 | 1 | ..... | 30 | ..... | 3 | ..... | ..... | 34 | ..... | 1 | ..... | 1 | 1 | 1 | 4 | 38 |
| Colorado No. 3 | 1 | ..... | 8 | ..... | 2 | 1 | ..... | 12 | ..... | ..... | ..... | 1 | 1 | 1 | 3 | 15 |
| Central | 1 | ..... | 29 | ..... | 1 | ..... | ..... | 32 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 32 |
| Cuba No. 2 | 1 | ..... | 43 | ..... | 3 | ..... | ..... | 47 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 48 |
| Decatur No. 1 | 1 | ..... | 56 | ..... | 5 | ..... | 1 | 63 | 1 | 1 | ..... | ..... | 6 | 1 | 9 | 72 |
| Donegal | 1 | ..... | 10 | ..... | 1 | ..... | ..... | 12 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 12 |
| Electric | 1 | ..... | 71 | ..... | 4 | ..... | ..... | 76 | 1 | 1 | ..... | ..... | ..... | 2 | 4 | 80 |
| Eureka No. 5 | 1 | 1 | 161 | ..... | 10 | 41 | 4 | 218 | ..... | 2 | 4 | 2 | 4 | 2 | 14 | 232 |
| Eureka No. 7 | 2 | ..... | 128 | 5 | 7 | 5 | ..... | 147 | ..... | 2 | 4 | 2 | 3 | 2 | 13 | 160 |
| Eureka No. 12 | 1 | ..... | 29 | ..... | 1 | 4 | 1 | 36 | ..... | 1 | ..... | 1 | 1 | 1 | 4 | 40 |
| Eureka No. 13 | 1 | ..... | 102 | 6 | 6 | 7 | 3 | 125 | ..... | 1 | 1 | 1 | 2 | 2 | 8 | 133 |
| Eureka No. 14 | 1 | ..... | 77 | 1 | 5 | 11 | ..... | 94 | ..... | 1 | 1 | 1 | 1 | 2 | 6 | 81 |
| Eureka No. 16 | 1 | ..... | 70 | 1 | 4 | 5 | ..... | 81 | ..... | 1 | ..... | 1 | 2 | 2 | 6 | 87 |
| Eureka No. 18 | 1 | ..... | 71 | 1 | 4 | 8 | ..... | 85 | ..... | 1 | ..... | 1 | 2 | 2 | 6 | 91 |
| Eureka No. 19 | 1 | ..... | 150 | 2 | 8 | 17 | 2 | 180 | ..... | 2 | 1 | 1 | 2 | 2 | 8 | 188 |

TABLE No. 3.—Continued.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Eureka No. 20, | 1 | ..... | 70 | 4 | 4 | 5 | ..... | 84 | ..... | 1 | ..... | ..... | 1 | 2 | 4 | 88 |
| Eureka No. 21, | 1 | ..... | 61 | 1 | 3 | 6 | 1 | 73 | ..... | 1 | ..... | 1 | 1 | 2 | 5 | 78 |
| Eureka No. 22, | 2 | ..... | 297 | 4 | ..... | 15 | 3 | 321 | ..... | 2 | 2 | 2 | 8 | 4 | 18 | 339 |
| Eureka Nos. 23 and 26, | 1 | ..... | 83 | 2 | ..... | 8 | 2 | 96 | ..... | 2 | 3 | 2 | 3 | 4 | 14 | 110 |
| Eureka No. 24, | 1 | ..... | 29 | 1 | 1 | 7 | ..... | 39 | ..... | 1 | 1 | ..... | 1 | 2 | 5 | 44 |
| Eureka No. 25, | 1 | ..... | 15 | ..... | 2 | ..... | ..... | 18 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 18 |
| Fairmount, | 1 | ..... | 27 | ..... | 2 | ..... | ..... | 30 | ..... | ..... | ..... | ..... | 2 | ..... | 2 | 32 |
| Ghem, | 1 | ..... | 27 | ..... | 2 | ..... | 1 | 31 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 31 |
| Gearhart, | 1 | ..... | 65 | ..... | 3 | 2 | ..... | 71 | 1 | 1 | ..... | 1 | 1 | 1 | 5 | 76 |
| Formerly Grampian, now Raybold, | 1 | ..... | 57 | ..... | 2 | 1 | 1 | 62 | ..... | ..... | ..... | ..... | 2 | 2 | 4 | 66 |
| Glenwood, | 1 | ..... | 50 | ..... | 3 | ..... | ..... | 54 | ..... | 1 | ..... | ..... | 1 | 1 | 3 | 57 |
| Guion, | 1 | ..... | 13 | ..... | 1 | ..... | ..... | 15 | ..... | ..... | ..... | 1 | ..... | ..... | 1 | 16 |
| Highland, | 1 | ..... | 17 | 2 | 2 | ..... | 1 | 23 | 1 | ..... | ..... | 1 | 1 | 1 | 4 | 27 |
| Henderson No. 2, | 1 | ..... | 24 | ..... | 2 | ..... | ..... | 27 | 1 | ..... | ..... | ..... | ..... | 1 | 2 | 29 |
| Imperial, | 1 | ..... | 60 | 1 | 5 | 1 | 1 | 69 | 1 | 1 | ..... | 1 | ..... | 2 | 5 | 74 |
| Jefferson, | 1 | ..... | 47 | ..... | 2 | ..... | ..... | 50 | 1 | ..... | ..... | 1 | 1 | 1 | 4 | 54 |
| Kentuck, | 1 | ..... | 21 | ..... | 2 | ..... | ..... | 24 | ..... | ..... | ..... | 1 | 1 | ..... | 2 | 26 |
| Klondyke, | ..... | ..... | 5 | ..... | 1 | ..... | ..... | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 |
| Leader Nos. 2 and 3, | 1 | ..... | 20 | ..... | 3 | ..... | ..... | 24 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 25 |
| Lancashire No. 1, | 1 | ..... | 106 | ..... | 8 | 4 | 2 | 121 | 1 | 1 | ..... | 1 | 2 | 2 | 7 | 128 |
| Lancashire No. 2, | 1 | ..... | 42 | ..... | 3 | 1 | 1 | 48 | 1 | ..... | ..... | ..... | 1 | 1 | 3 | 51 |
| Leland No. 1, | 1 | ..... | 47 | 2 | 2 | 1 | 4 | 57 | ..... | 1 | ..... | 1 | ..... | 1 | 3 | 60 |
| Leland No. 2, | 1 | ..... | 9 | ..... | 1 | ..... | ..... | 11 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 11 |
| Loraine, | 1 | ..... | 32 | ..... | 2 | 1 | ..... | 36 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 37 |
| Lane Nos. 1 and 2, | 1 | ..... | 59 | ..... | 3 | 1 | ..... | 63 | ..... | 1 | ..... | ..... | 4 | 1 | 6 | 69 |
| Lenore, | 1 | ..... | 48 | ..... | 3 | ..... | ..... | 52 | 1 | 1 | ..... | ..... | ..... | ..... | 2 | 54 |
| Morann, | 1 | ..... | 8 | 2 | 1 | ..... | ..... | 12 | 1 | ..... | ..... | ..... | 2 | 1 | 4 | 16 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mabel, | 1 | ..... | 40 | ..... | 2 | 1 | ..... | 44 | ..... | ..... | ..... | 1 | ..... | 1 | 2 | 46 |
| Meadowbrook, | 1 | ..... | 25 | ..... | 1 | ..... | ..... | 27 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 28 |
| Mapleton, | 1 | ..... | 17 | ..... | 2 | ..... | ..... | 20 | ..... | ..... | ..... | ..... | 3 | 1 | 4 | 24 |
| Morrisdale Shaft, | 3 | ..... | 507 | ..... | 30 | 8 | 20 | 568 | 1 | 3 | 7 | 2 | 12 | 5 | 32 | 600 |
| Moshannon, | 1 | ..... | 10 | ..... | 1 | ..... | ..... | 12 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 13 |
| Morrisdale No. 4, | ..... | ..... | 7 | ..... | 1 | ..... | ..... | 8 | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 9 |
| Mt. Vernon No. 4, | 1 | ..... | 34 | ..... | 1 | ..... | ..... | 36 | ..... | 1 | 2 | 1 | ..... | ..... | 4 | 40 |
| Mt. Vernon No. 6, | 1 | ..... | 84 | ..... | 6 | 3 | 4 | 98 | 1 | 2 | 2 | 1 | 1 | ..... | 7 | 105 |
| Mt. Vernon No. 7, | 1 | ..... | 44 | ..... | 2 | 1 | ..... | 48 | ..... | 1 | ..... | 1 | 1 | ..... | 3 | 51 |
| Midvale Nos. 1 and 2, | 1 | ..... | 26 | ..... | 2 | ..... | ..... | 29 | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 30 |
| Orient, | 1 | ..... | 33 | ..... | 3 | 1 | ..... | 38 | ..... | ..... | ..... | ..... | ..... | 2 | 2 | 40 |
| Ocean No. 2, | 1 | ..... | 63 | 1 | 4 | 1 | 2 | 72 | ..... | 1 | 2 | 1 | 1 | 3 | 8 | 80 |
| Ophir, | 1 | ..... | 70 | ..... | 4 | ..... | 3 | 78 | 1 | ..... | ..... | 1 | 1 | 1 | 4 | 82 |
| Pardee No. 2, | 1 | ..... | 38 | 2 | 2 | ..... | ..... | 43 | ..... | 1 | ..... | ..... | 2 | 2 | 5 | 48 |
| Phoenix, | 1 | ..... | 24 | ..... | 2 | 1 | ..... | 28 | ..... | 1 | ..... | ..... | ..... | 1 | 2 | 30 |
| Parks, | 1 | ..... | 24 | ..... | ..... | ..... | ..... | 25 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 26 |
| Reading, | 1 | ..... | 26 | ..... | 2 | ..... | 2 | 31 | ..... | 1 | ..... | ..... | ..... | 1 | 2 | 33 |
| Sterling No. 3, | 1 | ..... | 26 | ..... | 1 | 3 | ..... | 31 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 31 |
| Schwinn, | 1 | ..... | 40 | ..... | 1 | ..... | ..... | 42 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 43 |
| Strachan, | 1 | ..... | 14 | ..... | 2 | ..... | ..... | 17 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 17 |
| Summit Colliery, | 1 | ..... | 9 | ..... | 1 | ..... | ..... | 11 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 11 |
| Troy, | 1 | ..... | 11 | ..... | 1 | ..... | 1 | 14 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 15 |
| Union, | 1 | ..... | 40 | 4 | 3 | ..... | 1 | 49 | ..... | 1 | ..... | ..... | ..... | 1 | 2 | 51 |
| West Eureka No. 4, | 1 | ..... | 90 | ..... | 9 | 3 | 5 | 108 | ..... | 1 | 5 | 1 | 5 | ..... | 12 | 120 |
| West Eureka No. 5, | 1 | ..... | 99 | ..... | 7 | ..... | 3 | 110 | ..... | 1 | 5 | ..... | 5 | ..... | 12 | 121 |
| West Eureka No. 6, | 1 | ..... | 73 | ..... | 5 | 5 | 6 | 90 | ..... | 3 | 7 | 1 | 5 | ..... | 16 | 106 |
| West Eureka No. 10, | 1 | ..... | 153 | ..... | 9 | 5 | 7 | 175 | ..... | 2 | 2 | 1 | 7 | ..... | 12 | 187 |
| West Eureka No. 11, | 1 | ..... | 125 | ..... | 5 | 1 | 2 | 134 | ..... | 1 | ..... | 1 | 6 | ..... | 8 | 142 |
| West Eureka No. 12, | 1 | ..... | 55 | ..... | 2 | 1 | 2 | 61 | ..... | 1 | ..... | 1 | ..... | 1 | 3 | 64 |
| Webster No. 4, | 1 | ..... | 148 | 2 | 7 | 4 | ..... | 162 | ..... | 2 | 1 | ..... | 5 | 2 | 10 | 172 |
| Columbia No. 5, | ..... | ..... | 8 | ..... | 1 | ..... | ..... | 9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| Total, | 86 | 1 | 5,081 | 91 | 286 | 205 | 116 | 5,866 | 19 | 62 | 60 | 50 | 132 | 94 | 417 | 6,283 |

TABLE No. 4—List of Fatal Accidents that occurred in and about the Mines of the Eighth Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Mar. 4, | Mike Lopik, | Miner, | 22 | S. | .... | Eureka No. 22, | Clearfield, | Fatally injured; partly by burns and partly by shock, while in contact with electric wire, charged with 500 volts, on haulageway in the mine. |
| April 29, | Alex. Pollock, | Mine foreman, | 27 | S. | .... | Atlantic No. 2, | Clearfield, | Spout of oil can forced into his right eye while oiling fan engine. |
| June 17, | Joseph Havanic, | Miner, | 32 | M. | 2 | Mt. Vernon No. 7, | Clearfield, | Struck by falling stone, crushing head and chest. |
| 25, | Einc Olson, | Miner, | 50 | M. | 2 | Eureka No. 7, | Clearfield, | Struck by falling stone while mining a cut of coal, crushing head and chest, and causing instant death. |
| July 23, | David Mosha, | Miner, | 19 | S. | .... | Eureka No. 26, | Clearfield, | While wandering through the mine in the dark he came in contact with electric wire charged with 500 volts, causing death in 20 minutes. |
| 26, | Thomas Vaughan, | Miner, | 62 | M. | 5 | Atlantic No. 1, | Clearfield, | Roof slate fell over a space of 20 feet by 13 feet, completely covering Vaughan, causing instant death. |
| Aug. 2, | Andrew Gowitchie, | Miner, | 42 | S. | .... | Morrisdale Shaft, | Clearfield, | Skull fractured, causing internal hemorrhage, by premature blast of stone shot, causing death in Philipsburg Hospital on the 11th of August. |

TABLE No. 5—List of Non-Fatal Accidents that occurred in and about the Mines of the Eighth Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Jan. 18, | George Hartshorn, | Miner, | 50 | M. | Lancashire, | Clearfield, | Collar bone and chest severely bruised by a fall of coal. |
| Feb. 3, | John Calloway, | Miner, | 44 | M. | Morrisdale Shaft, | Clearfield, | Hand crushed by a fall of coal and slate. |
| 9, | Kemp Cook, | Driver, | 23 | M. | Eureka No. 18, | Clearfield, | Fracture of left leg above ankle while riding between two empty cars. |
| 16, | Samuel Smiles, | Driver, | 40 | M. | Eureka No. 20, | Clearfield, | Leg broken above ankle; riding between loaded cars. |
| 19, | Patrick Nuegan, | Miner, | 52 | S. | Baltic No. 1, | Clearfield, | Collar bone broken by a fall of coal. |
| 20, | William Mars, | Miner, | 27 | M. | Atlantic No. 1, | Clearfield, | Compound fracture of leg by fall of coal. |
| 22, | Andrew Greece, | Miner, | 45 | M. | Lancashire No. 1, | Clearfield, | Jaw broken and sides severely bruised by a fall of coal. |
| 22, | John Kyrne, | Miner, | 52 | M. | Eureka No. 26, | Clearfield, | Leg severely bruised between two loaded cars. |
| 23, | Steven Botcham, | Miner, | 45 | M. | Morrisdale Shaft, | Clearfield, | Back bruised by a fall of roof slate. |
| 25, | Willis Shoff, | Miner and extra driver. | 25 | S. | Morrisdale Shaft, | Clearfield, | Left hip dislocated and fracture of right leg above knee caused by a fall of roof slate catching him on hips. |
| Mar. 11, | John Zeilinski, | Miner, | 27 | S. | Eureka No. 5, | Clearfield, | Bad scalp wounds by a fall of top coal while undermining bottom coal. |
| April, 3, | Edward Brown, | Driver, | .... | .... | Eureka No. 5, | Clearfield, | Leg fractured; caught between cars. |
| 10, | Daniel Copetcia, | Miner, | 27 | S. | Eureka No. 22, | Clearfield, | Nose broken while riding between cars; they came in collision with other cars. |
| May 6, | John Smith, | Miner, | 40 | M. | Morrisdale Shaft, | Clearfield, | Fracture of ankle by a fall of roof slate. |
| 11, | Oliver Carley, | Miner, | 22 | S. | Baltic No. 3, | Clearfield, | Leg fractured by fall of coal. |
| June 8, | Robert Gunn, | Driver, | 35 | M | Reading, | Clearfield, | Right hip dislocated, ribs bruised, shoulder and head bruised and cut; fell between cars. |
| 10, | Metro Behon, | Miner, | 40 | M. | Eureka No. 26, | Clearfield, | Head and leg cut and bruised; struck by electric locomotive. |
| 16, | John Herron, | Miner, | 65 | M. | Eureka No. 19, | Clearfield, | Simple fracture of right leg below knee by fall of coal. |
| 29, | John Gilson, | Driver, | 28 | M. | Retort, | Centre, | Fracture of right leg above ankle while riding between cars. |

TABLE No. 5. —Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| June 31, | Andrew Poppy, ..... | Miner, ..... | 35 | M. | Acme, ..... | Clearfield, ..... | Compound fracture of right leg above ankle; struck by haulage rope while crossing tipple tracks. |
| July 14, | Peter Spooner, ..... | Miner, ..... | 57 | M. | Coaldale No. 3, ..... | Clearfield, ..... | Collar bone broken by fall of coal. |
| Sept. 3, | Mike Totkish, ..... | Miner, ..... | 32 | S. | Eureka No. 26, ..... | Clearfield, ..... | Both burned about head, hands and face; one of them was filling powder can with lamp on his head and a spark fell in the can, burning both. |
| 3, | Mike Postor, ..... | Miner, ..... | 25 | S. | Eureka No. 26, ..... | Clearfield. ..... | |
| 13, | Mike Ferti, ..... | Miner, ..... | 30 | M. | Eureka No. 22, ..... | Clearfield, ..... | Head, shoulders and neck bruised by fall of coal. |
| Oct. 4, | Robt. Mundy, ..... | Miner, ..... | 43 | M. | Webster No. 4, ..... | Clearfield, ..... | Simple fracture of leg and dislocation of hip joint by a fall of roof. |
| Nov. 10, | Albert Blacker, ..... | Miner, ..... | .... | M. | Atlantic No. 2, ..... | Clearfield, ..... | Back severely bruised by fall of slate roof. |
| 27, | John Ditchburn, ..... | Miner, ..... ..... | 41 | S. | Colorado No. 2, ..... | Clearfield, ..... | Collar bone broken and side bruised by fall of coal. |
| 29, | John Geo Hartley, ..... | Miner boy, ..... | 16 | S. | Morrisdale Shaft, ..... | Clearfield, ..... | Back severely bruised by fall of bone coal. |
| Dec. 13, | Alexander Bryan, ..... | Miner, ..... | 59 | M. | Webster No. 4, ..... | Clearfield, ..... | Left hip dislocated and right collar bone broken; struck his head and shoulders against roof while riding on loaded cars. |

# Ninth Bituminous District.

(ALLEGHENY, FAYETTE AND WESTMORELAND COUNTIES.)

Connellsville, Pa., February 9, 1898.

Hon. James W. Latta, Secretary of Internal Affairs:

Sir: I have the honor to submit herewith my annual report as Inspector of mines of the Ninth bituminous district for the year ending December 31, 1897.

The quantity of coal mined in the district during the year was 5,074,385 tons, or 136,507 tons less than was mined in 1896. The quantity of coke produced and shipped was 1,593,325 tons, or an increase of 328,007 tons as compared with the year 1896. The decrease in the production of coal was caused by a strike, which continued for three months, and the increase in the output of coke was due to better trade, which, apparently, will continue during this year.

During the year nineteen lives were lost, the same number as last year. The number of non-fatal accidents was thirty-three, being nine less than for 1896.

It is evident that at least 50 per cent. of the fatal accidents were due to carelessness and the unusual risks taken by the victims. This is a matter complained of in every report. Some of these accidents result from ignorance of the danger and a large proportion of them are due to the fact that long experience in the mines leads the workmen to believe that they can take better care of themselvs than those who are employed to look after the safety of the mines and those employd therein.

Fifteen wives were made widows and fifty-five children orphans by these casualties. There is little to say regarding the healthful condition of the mines that was not in the report for 1896. There have been more mining machines introduced into the district, which was the cause of greater loss of life. A better class of machines and improved methods of machine mining are being adopted to reduce the liability to accidents. His Excellency, the Governor of Pennsylvania, has appointed a Chief Inspector, and while the term of the appointee has been so far too short for the evidence of improvement, yet



30—10—97

we have to give His Excellency our most sincere thanks for appointing a man of expert knowledge and experience in matters pertaining to the safe and economical operation of mines.

A brief description of the mines is attached hereto; also, a description of the accidents and the circumstances attending them, together with the statistical tables, which will be found in their proper places in this report.

All of which is respectfully submitted,

BERNARD CALLAGHAN.

Accident Table for 1897.

| Cause of Accidents. | Fatal. | Non-fatal. | Widows. | Orphans. |
|---|---|---|---|---|
| By falls of slate, | 11 | 15 | 7 | 24 |
| By roof coal and slate, | 5 | 2 | 5 | 14 |
| By wagon trips, | 2 | 7 | 1 | 4 |
| By cage, | 1 | | 1 | 4 |
| By coal, | | 6 | 1 | 9 |
| By blown out shots, | | 2 | | |
| By explosive gas, | | 1 | | |
| Total, | 19 | 33 | 15 | 55 |

Nationality of Persons Killed or Injured.

| Nationality. | Killed or fatally Injured. | Injured. | Total. |
|---|---|---|---|
| German, | 5 | 7 | 12 |
| French, | 1 | 2 | 3 |
| American, | 1 | 7 | 8 |
| Hungarian, | 4 | 6 | 10 |
| Slavish, | 5 | 8 | 13 |
| Italian, | 3 | 1 | 4 |
| Swede, | | 1 | 1 |
| Irish, | | 1 | 1 |
| Total, | 19 | 33 | 52 |

Summary of Statistics for 1897.

| | |
|---|---|
| Number of mines in the district, | 66 |
| Number of mines operated during the year, | 59 |
| Number of mines idle during the year, | 7 |
| Number of persons employed inside during the year, | 6,525 |
| Number of persons employed outside, | 1,981 |
| Total number of persons employed, | 8,509 |
| Number of tons (2,000 pounds), of coal mined, | 5,074,385 |
| Number of tons (2,000 pounds) of coal shipped, | 2,878,708 |
| Number of tons (2,000 pounds) of coke made and shipped during the year, | 1,593,325 |

Tower and Tipple, Davidson Shaft.

| | |
|---|---|
| Number of tons (2,000 pounds) coal produced for each person employed, | 596.35 |
| Number of lives lost during the year, | 19 |
| Number of tons of coal produced for each life lost, | 267,072.9 |
| Number of persons injured during the year, | 33 |
| Number of tons of coal produced for each injury, | 153,769 |
| Number of persons employed for each life lost, | 447 |
| Number of persons employed for each non-fatal accident during the year, | 257 |
| Number of days worked during the year, | 9,242 |
| Average number of days worked at 59 mines, | 156 |
| Number of kegs of powder reported used, | 11,622 |
| Number of pounds of dynamite reported used, | 9,241 |
| Number of steam boilers used at the mines, | 152 |
| Number of mine locomotives employed, | 5 |
| Number of outside locomotives used for charging ovens, | 10 |
| Number of coke ovens in operation in the district, | 4,123 |

## Mines on the B. & O. Railroad.

B. & O. Mine.—This mine is in good condition, considering the length of time it will require to exhaust the coal, which will be about another year. Ventilation and drainage are fairly good. Clair Stillwagon, mine foreman.

Davidson Shaft.—This report shows a new shaft, as the old one was destroyed by fire, the derrick having taken fire last January. The depth of the shaft is 116 feet from the surface. The derrick is a first class one, and is 85 feet high, has a self-dumping cage, and the latter works successfully. A tail rope haulage has been put in, beginning at the proper distance from the bottom and the coal is caged from one side. The empty wagons, when dumped, pass with the loaded ones to the spot where the loaded wagons pass and the tail rope reaches them, this being done as neatly as it is in the system of the Mitchell dump. No person's help is needed except the man who pushes the loaded wagons on the cage. The other portions of this bottom are as pretty and neat as could be desired underground. The sides are built up with sandstone and the electric lights display a wide space, with a roof 13 feet high. Iron girders, lagged with oak planking, are used to make the roof more secure. These girders are painted red and the sides of the interior walls are whitewashed. This mine is in good condition and is the property of the H. C. Frick Coke Company. Mine foreman, John Stevenson.

Tyrone Mine.—This mine's record for 1897 has not materially changed from the year previous. Work was steady, the mine having been in operation 310 days. Care is taken in every manner for the

safety of the workmen and for economy. Mine foreman, Thomas R. Kane.

Henry Clay.—This mine made a good record for the year, which ended with a mine fire, the origin of which is unknown. The fire originated in a gob, in a portion of the mine which was abandoned two years ago. No shots had been fired in the vicinity of the fire, no person worked without safety lamps and no explosion was known to have occurred. The fire is a complete mystery, and must have been caused by spontaneous combustion, the first occurrence of the kind in this region. One thing was fortunate in this case. The portion of the mine where the fire started, is lower than the workings and all that was necessary to do was to cement five brick stoppings and to fill the enclosed area with water, pumped into the mine. As the fire has been seen on the top of coal, it is thought that it can be drowned out and no trouble is expected, nor is there any danger apprehended. The other portions of the mine are in good condition.

Sterling No. 1.—This mine was started in November, after having been in idleness for three years. I made a visit to this place and found everything in good condition. Mine foreman, Frank Cochran.

Jackson.—This mine is progressing well. All of the old ribs are being worked out and the diggers will soon be into solid coal. Mine foreman, George Moore.

Sterling No. 2.—This mine is not in operation and has not been active for many months.

Eureka.—Many improvements have been made in this mine in the steep entries, and the ventilation has been bettered by the instalation of a small electric fan, which was put in at the top of one entry, while a road has been cut through to daylight, which serves as a traveling way for the miners and keeps them off the haulage road. The other parts of the mine are in good condition. Mine foreman, James Bayley.

Smithton No. 2.—The persons who had this mine leased for four years have purchased and are operating it in as able a manner as owners as they did when lessees. Mine foreman, James Henderson.

Port Royal No. 1.—Many repairs have been made during the year, including new shaft timbers a distance of twenty-five feet from the top downward. A new derrick for hoisting has also been installed. A great improvement was made at the bottom by blasting down the roof six feet, making it just that many feet higher than formerly. The road was then raised so that the loaded wagons bump off the empty ones, which then run to their destination without further assistance.

Euclid.—As regards ventilation and drainage, this mine is in good condition. It is the intention of the company to repair the shaft, and, perhaps, to make it larger, as it is now too small to allow of the

passage of a large wagon. The contemplated improvements will be necessary as the mine is now developed far enough to require them. Mine foreman, Charles K. McCaffrey.

Amyville.—This mine is in fairly good condition, considering the distance the coal has to be hauled by mules. There is no machinery of any kind in the mine. Mine foreman, Samuel Jones.

Yough Slope.—This mine has installed a number of mining machines, which have proven a success. The system seems to suit every person. Ventilation and drainage are good. Mine foreman, Charles K. McCaffrey.

Ocean No. 1.—Several electric motors are located at this mine, which are doing well, and the coal cutting machines are satisfactory. The workings are so far from the mouth of the mine that two motors are necessary for the hauling of the coal to the surface to ensure a large output. The Cappell fan is giving a large supply of air, 60,000 cubic feet per minute, but the mine is so extensive and there is so much powder used, that the company intends to sink a shaft at the far end of the workings, to assist the ventilation and for pumping. The drainage requires as much attention as the ventilation, and the contemplated improvements will be a great benefit to both. Mine foreman, William Goldsboro.

Shaners No. 2.—This mine is now in very good condition. The headings are being driven with vim and an endless rope haulage is being put in, which will increase the output. This is the only mine in the district that takes advantage of the bad roof by driving the rooms wide and putting two roads in them. The safe point is that two good rows of posts are kept next the roads on both sides, and the bad roof is given a chance to fall in the middle. Mine foreman, Walter O'Malley.

Guffey.—This mine is in very good condition, since the swamp on the right side was raised. There are no headings being driven, and unless some are started before long, the mine will not long remain in operation. Mine foreman, Edward Bell.

Big Chief.—A new company has taken possession of this mine, which is operating the plant successfully and keeping it in good condition. The new owner is the Youghiogheny River Company.

Osceola.—If the mud were cleaned from the haulage roads in this mine the condition would be improved. Barring this, the mine is in fair condition. Mine foreman, Maurice Beadle.

## Mines on the Mt. Pleasant Branch.

Rist.—A statement that everything about this mine is in first class condition covers all that can be said regarding it. Mine foreman, Charles Winingroth.

Morgan.—There is scarcely any solid coal left to mine in this pit, and, although all the work is done in ribs and stumps, I always find the plant in good condition. Mine foreman, Daniel Alsop.

White.—This mine is kept in good condition throughout the year. Mine foreman, William Miner.

Summit and Eagle.—I always find these mines in good condition, with good ventilation and drainage. Mine foreman, John Nolan.

Franklin.—I have never visited this mine and found the requirements of the law disobeyed. Mine foreman, Jacob Dewalt.

Tip Top.—This mine was idle for a long time during the year, but is in operation now, and in good condition. Mine foreman, James Wardlow.

Valley.—On every visit to this mine, I have found it in good condition in every respect, as far as the requirements of the law are concerned. Mine foreman, James Jackson.

Scottdale Iron and Steel Company.—This mine supplied the steel mill with coal, but the firm is now using natural gas and the mine has been closed down.

Dexter.—On my last visit, I found the ventilation and drainage good; also that most of the dirty coal has been worked out and the mine will soon have a nice, clean coal to work in. Mine foreman, S. S. Fairchild.

Painter.—This mine has been opened through to old Fountain, and a way is being prepared to pump the water so that all the coal can be worked out to advantage. Drainage and ventilation will be improved, although both are fairly good now.

Diamond.—This mine has worked none this year.

Bessemer.—On my last visit I found the ventilation and drainage improved. If the care exercised now is continued till the mine is worked out, there will be no complaints.

Rising Sun.—This mine was idle most of the year, but was working when I visited it at the same time I visited the Bessemer. The same mine foreman is attending to both mines, and the Rising Sun mine is in good condition. Mine foreman, J. A. Trimbath.

Emma.—This is a small mine, but I always find it in proper condition, with good ventilation and drainage. Mine foreman, Adam Whitehead.

West Overton.—This mine is now working altogether in new hill coal, but being so near the crop the coal gets red before the property line is reached. I can venture the opinion that the mine will not last long, although at present in good condition for the number of workmen employed. Mine foreman, John Boyle.

Buckeye.—This mine is kept in good condition, and I find no complaints with the system adopted in the mining or the precautions for the safety of the employes. Mine foreman, George Burns.

Mullen.—Everything in this mine is progressing favorably. The ventilation and drainage are good. Mine foreman, Albert Williams.

### Mines Along the Southwest Pennsylvania Railroad.

Plumer.—Before another year passes away this mine will have taken its place among those counted as exhausted in the Connellsville region. Even to the last it is kept in good condition. Mine foreman, William Bennet.

Coalbrook.—Very little need be said about this mine. It was opened up on a good system and this course is being continued. Mine foreman, M. F. Picard.

Grace.—Everything in this mine is up to the requirements of the law. Few entries can be driven, as the headings are about up to the property lines. B. S. Raygor is mine foreman.

Pennsville.—This is a small mine, but is always kept in good condition. Care is taken in its mining operations. Mine foreman, William Kooser.

Enterprise.—I have never until now had an opportunity to report this mine, as it was always idle. When I visited it, everything was in good condition, but from appearances there is little coal left to mine. Mine foreman, Andrew Neish.

Union.—This plant was not working when I visited it, but is now. It has changed hands, W. J. Rainey being the purchaser, and he has recently put it in operation. The coal is used in the manufacture of coke. The mine is now working nearly to its capacity.

Mayfield and Donnell.—These two mines were both idle during the year.

### Mines Along the Pittsburgh and Lake Erie Railroad.

Adelaide.—This is a very large mine and is always kept in good condition. All the requirements of the law are observed. A new coal crusher has ben put in the coal bin, for the purpose of crushing the coal used in the coke ovens. Thomas Harris is the mine foreman.

Moreland Slope and Fort Hill.—These two mines appear like two separate operations but really are only one. The slope was driven to its destination first and the coal worked out continuously at the foot, until the first flat is nearly all worked out. This is a first class prevention against squeezes and is approved of in this mine. Mine foreman, William Sloan.

Rainbow.—This mine is turning out a large output of coal, having the old slope and the upper side both working advantageously. A small mine fire occurred in the beginning of May, but little other trouble was encountered. The fire occurred in the entry driven 160 feet from the main heading. As no cut through had been made, the fire was easily smothered. A workman put off a shot, which fired the coal, and as he could not extinguish the fire he quietly left it, telling

no one of the danger. Consequently, it had a good start before it was discovered. Three weeks sufficed to smother it. Mine foreman, Dennis Wordly.

Wick Haven.—A new Cappell fan has ben installed at this mine, which is capable of producing about 10,000 cubic feet of air per minute. In now depends on the management to keep up the ventilation, for the means are at hand. Mine foreman, James Watkins.

Banning.—Some improvements have been made at this mine in the ventilation, but more air yet is needed. While the fan gives a good quantity, it would be well to find about the one-half of it at the bottom of the slope instead of one-tenth of it. This is absolutely necessary where gas is given off in large quantities. Mine foreman, Arthur Crossland.

Darr Mine.—This mine is in very good condition. It is the intention of the firm to put in an electric motor to haul the coal to the rope haulage. This seems to be the best method of overcoming the difficulty of keeping the rope in good working order, which is particularly difficult on account of its great length, which is about 4,000 feet. The quantity of coal to be hauled out of this mine precludes the possibility of further extending the rope for loads. The ventilation at the bottom of this slope, 7,000 feet from the fan, is 48,000 cubic feet per minute, which is commendable. This slope, at one time, showed considerable quantities of explosive gas, but I have been unable to find any whatever since the ventilation has been improved. Mine foreman, Charles Watson.

Ocean No. 5.—This mine has been operated steadily since the strike until the beginning of the year. The interior is well attended to. Mine foreman, Frank Ridly.

Port Royal No. 2.—This mine has made a good showing during the year as to improvements. An additional fan has been installed, which is to be used in case of emergency. The interior work was progressing well until a short time before the close of the year, when a fire broke out at the foot of No. 9 entry. The fire started after every person was out of the mine. An hour later the night water hauler entered and saw the fire burning in two trap doors and beginning to catch the coal. Knowing that he could not extinguish it himself, he hurried to the shaft and gave the alarm. The mine foreman and fire boss entered soon after, bringing other help. Three lines of hose were attached to a water supply, and water was thrown on the fire all night and all the next day. But it defeated the efforts of the men and the area fired had to be abandoned and bratticed up, first a layer of wood and on the outside of these, brick ones were erected. The portion of the mine endangered was then flooded to the roof, which was made easy by the lay of the passages, and it is expected that the fire has been smothered and that it will cause no more trouble. Mine foreman for Nos. 1 and 2, William Goodfellow.

West Newton Shaft.—There is nothing new to report about this mine. The mining machines are doing well. The mining is done mostly with two roads in a room, the latter being no less than thirty-six feet wide. Ventilation and drainage are good.

Forest Hill.—This large mine is still being extended. At present, a large quantity of explosive gas is encountered, both in the solid entries and in the gob. On my last visit a large number of men were working with safety lamps, and the gas is well looked after. All the precautions for the safety of the men are taken. Mine foreman, Robert Watson.

Pacific.—This mine was worked very little during the year, and operations will not be renewed for some time to come.

Sarah.—This mine did more work during 1897 than for many years previously. The ventilation is not as good as it should be, and will not be improved much till an entry is driven through to daylight. This is being done, and will be completed before long. This improvement is much needed to aid both drainage and ventilation. Mine foreman, John Thomas.

Ocean No. 2.—This mine is in very good condition. There is a good current of air going through every entry. The large number of coal cutting machines in this mine require plenty of air. The machine mining varies from that system adopted at other plants somewhat. Some of the rooms have two roads which are thirty-six feet wide, and the ribs are not often drawn out. Other rooms are twenty-one feet wide, with one road, and the ribs are taken out afterwards. The company is adopting the best system to suit the circumstances. Mine foreman, Thomas Whiteman.

Painters & Cornell.—There is no machinery in this mine. All the coal produced is pick-mined. This mine is always found in good condition. Mine foreman, John Frazor.

Dravo.—All the coal is mined by pick, and the mine is kept in good condition while working, but when business becomes slack, like all the small operations, the pit is somewhat neglected. Mine foreman, John Matthews.

Brown No. 2.—This mine did fairly well during the year. The owners have installed four cutting machines, the inventor of which is their own machinist. The machine needs no truck on which to haul it from place to place, as the wheels are attached to the bottom frame which can be taken off when the machine is in position for work. There is also an appliance attached which makes it possible to shear the rib sides either on the entries or in rooms. Alex. Cochrane is the mine foreman.

Lynch.—This mine has so few men working now that it does not come under the provisions of the mining laws. I visited it, however, and found it in good condition.

## Mines Along the Belle Vernon Railroad.

Belle Ridge.—This mine did not work much during the year. On my last visit, I found a new furnace built in one of the entries, which is doing good work. Everything else is satisfactory. Mine foreman, Andy Hunt.

Lovedale.—This is the first report I have made of this mine. It is now in operation under a new ownership. Most of the members of the new firm are miners. I have found everything in good condition. Mine foreman, John Forsythe.

Horner & Roberts.—These mines are now operated by a number of miners who style their firm the "Elizabeth Mining Company." One of the mines was not working when I made my last visit on account of a fire which originated around the furnace. The furnace shaft had been bratticed off with material and filled in with clay and water. The danger appears to be over. The other mine was in fairly good condition. Mine foreman, John J. Johnston.

Gospel.—The coal at this mine has been about worked out and the mine will soon be exhausted also, unless the owners purchase the adjoining coal, which would not necessitate the opening of new inlets, but which afford opportunity of continuing the old ones. On my last visit, I found everything in good condition. Mine foreman, John Besenthener.

## Fatal Accident List for 1897.

At the Davidson shaft, on the afternoon of January 9, while Jacob Kromer and William Gaskill were working together in a butt room on River heading, a piece of coal from the roof fell and fatally injured Kromer; he died in three hours.

Valentine Paltic, a miner, aged 37 years, was fatally injured in the West Newton shaft by a fall of slate on January 21 and died next day.

Dominick Denord, an Italian miner, was fatally injured in his room by a fall of coal, on February 17 and died in the West Penn hospital, at Pittsburg, a few weeks later.

John Kuryzki, aged 41 years, a Pole, was fatally injured at Port Royal No. 1 mine, on February 6, by a fall of slate and died the following day.

At Ocean No. 1 mine, Napoleon Lerella, an Italian, was fatally injured by a fall of slate and died shortly after.

Steve Ratula was almost instantly killed on the evening of March 27 at Moreland slope, by a fall of coal, in No. 3 room, off No. 5 flat. The deceased was a Slav.

Frank Reicki, a German, was instantly killed by a fall of slate in Little entry, on 25 face, at Port Royal mine, on April 2.

At the West Newton shaft, Andy Holan, a miner, was instantly killed on May 3 by a fall of slate in 112 room, No. 7 entry.

At the Eureka mine, on May 6, August Geiring, a German, was fatally injured by a fall of coal and died the same evening.

Joseph Auditanio, an Italian miner, was instantly killed on the evening of May 14, at Wick Haven mine, by a fall of slate.

Mervin Thompson, a trapper and flag boy, was instantly killed on May 17, at Moreland slope, by being caught between two loaded trips.

At the Port Royal mine, John Subina, a Russian Pole, was fatally injured by the cage on May 20; he lived six hours. He tried to get on the cage without the knowledge of the cager.

John Mattus, a German, was instantly killed at the Port Royal mine on June 4, by a piece of slate falling upon him.

Ricardo Roko, an Italian, was fatally injured in the Darr mine, on June 8, while crossing over the loaded trip while the latter was in motion.

Lewis Bucsak, a Polish miner, was instantly killed in the Darr mine on October 11, by a fall of slate.

John Petrik, a Slavish miner, was instantly killed in the Darr mine on October 22, by a fall of roof coal and slate.

Frederick Blum, a German miner, was instantly killed on October 28 at the Summit and Eagle mine, by a fall of coal and slate.

Michael Hazel, a Hungarian, was instantly killed in the Wick Haven mine on November 9, by a fall of slate.

TABLE No. 1.—Showing Location, etc., of Collieries in the Ninth Bituminous District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Amyville, | Youghiogheny Gas Coal Company, | Westmoreland, | John W. Peters, | Suterville. |
| Adelaide, | H. C. Frick Coke Company, | Fayette, | James A. Childs, | Adelaide. |
| Browns No. 1, | W. H. Brown's Sons, | Allegheny, | James A. Dewar, | Boston. |
| Browns No. 2, | W. H. Brown's Sons, | Allegheny, | James A. Dewar, | Boston. |
| B. & O., | Marietta & Stillwagon Company, | Fayette, | Clair Stillwagon, | Connellsville. |
| Banning, | Morgan, Moore & Baine Company, | Fayette, | Peter Cammeron, | West Newton. |
| Belle Bridge, | Belle Bridge Coal Company, | Allegheny, | Wm. A. Fillaborn, | Belle Bridge. |
| Big Chief, | John Blyth & Co., | Westmoreland, | H. D. Thompson, | Robbins. |
| Buckeye, | McClure Coke Company, | Westmoreland, | James Dumphy, | Stouffer. |
| Bessemer, | McClure Coke Company, | Westmoreland, | James Devlin, | Mount Pleasant. |
| Coal Brook, | McClure Coke Company, | Fayette, | M. F. Picard, | Moyer. |
| Davidson Shaft, | H. C. Frick Coke Company, | Fayette, | John I. Munson, | Connellsville. |
| Dexter, | Joseph R. Stouffer & Co., | Fayette, | S. R. Fairchilds, | Scottdale. |
| Donnelly, | McClure Coke Company, | Westmoreland, | O. W. Kennedy, | Scottdale. |
| Darr, | Osborne, Saeger & Co., | Westmoreland, | W. A. Osborne, | West Newton. |
| Diamond, | McClure Coke Company, | Fayette, | O. W. Kennedy, | Scottdale. |
| Dravo, | Lake Shore Gas Coal Company, | Allegheny, | C. H. Wiesser, | Robbins. |
| Emma, | J. W. Overholt & Co., | Westmoreland, | J. W. Overholt, | Scottdale. |
| Enterprise, | McClure Coke Company, | Westmoreland, | D. Hurst, | Alverton. |
| Eureka, | Eureka Coal Company, | Westmoreland, | William McCune, | West Newton. |
| Euclid, | Ohio and Pennsylvania Coal Company, | Westmoreland, | Michael Roy, | Fitz Henry. |
| Franklin, | B. F. Keister, | Fayette, | B. F. Kiester, | Summit Mines. |
| Fort Hill, | W. J. Rainey, | Fayette, | T. J. Mitchell, | Vanderbilt. |
| Forrest Hill, | J. W. Ellsworth & Co., | Allegheny, | Robert Watson, | Suterville. |
| Grace, | J. W. Rainey, | Fayette, | Thomas Johns, | Moyer. |
| Gospel, | H. D. O'Neil, | Allegheny, | H. D. O'Neil, | Elizabeth. |
| Guffey, | Youghiogheny Coal Company, | Westmoreland, | J. B. Stone, | Scott Haven. |
| Henry Clay, | H. C. Frick Coke Company, | Fayette, | William C. Mullen, | Broad Ford. |
| Horner & Roberts, | Elizabeth Mining Company, | Allegheny, | John J. Johnston, | Elizabeth. |
| Home Works, | Stouffer & Wiley, | Fayette, | John W. Wiley, | Everson. |
| Hazlett, | McClure Coke Company, | Westmoreland, | James Dumphy, | Stouffer. |
| Jackson, | James Cochran, | Fayette, | P. G. Cochran, | Dawson. |
| Lynch, | H. D. Lynch, | Allegheny, | H. D. Lynch, | McKeesport. |
| Lovedale, | Lovedale Mining Company, | Allegheny, | John Forsyth, | Elizabeth. |
| Mullin, | McClure Coke Company, | Westmoreland, | James Dumphy, | Stouffer. |
| Mayfield, | McClure Coke Company, | Westmoreland, | O. W. Kennedy, | Scottdale. |
| Morgan, | H. C. Frick Coke Company, | Fayette, | William C. Mullen, | Broad Ford. |
| Ocean No. 1, | Youghiogheny River Coal Company, | Westmoreland, | J. B. Stone, | Scott Haven. |
| Ocean No. 2, | Youghiogheny River Coal Company, | Allegheny, | J. B. Stone, | Scott Haven. |
| Ocean No. 4, | Youghiogheny River Coal Company, | Allegheny, | J. B. Stone, | Scott Haven. |
| Ocean No. 5, | Youghiogheny River Coal Company, | Allegheny, | J. B. Stone, | Scott Haven. |
| Osceola, | Osceola Coal Company, | Allegheny, | James W. Shields, | Emblem. |
| Pacific, | Youghiogheny River Coal Company, | Allegheny, | J. B. Stone, | Scott Haven. |
| Painter & Cornell, | J. W. Painter Coal Company, | Allegheny, | Robert Cornell, | McKeesport. |
| Port Royal No. 1, | Port Royal Coal and Coke Company, | Westmoreland, | William Goodfellow, | Fitz Henry. |
| Port Royal No. 2, | Port Royal Coal and Coke Company, | Westmoreland, | William Goodfellow, | Fitz Henry. |

| | | | | |
|---|---|---|---|---|
| Plumer, | H. C. Frick Coke Company, | Fayette, | John I. Munson, | Connellsville. |
| Pennsville, | J. D. Sherrick & Co., | Fayette, | John O. Sherrick, | Pennsville. |
| Painter, | McClure Coke Company, | Fayette, | John H. Culler, | Scottdale. |
| Rist, | H. C. Frick Coke Co., | Fayette, | William C. Mullen, | Broad Ford. |
| Rising Sun, | McClure Coke Co., | Westmoreland, | James Devlin, | Mount Pleasant. |
| Rainbow, | Rainbow Coal Company, | Fayette, | John Morris, | Whittset. |
| Sarah, | Douglas Coal Company, | Allegheny, | J. C. Peairs, | Blythedale. |
| Scottdale Steel Co., | A. S. Livengood, | Fayette, | A. S. Livengood, | Everson. |
| Shaners No. 2, | Criterion Coal Company, | Westmoreland, | Walter O'Malley, | Youghiogheny. |
| Smithton No. 2, | Waverly Coal and Coke Company, | Westmoreland, | John Harris, | Smithton. |
| Sterling No. 1, | H. C. Frick Coke Company, | Fayette, | James A. Childs, | Adelaide. |
| Sterling No. 2, | H. C. Frick Coke Company, | Fayette, | O. W. Kennedy, | Scottdale. |
| Summit, | H. C. Frick Coke Company, | Fayette, | William C. Mullen, | Broad Ford. |
| Tyrone, | Laughlin & Co., Limited, | Fayette, | Clifton Wharton, | Broad Ford. |
| Tip Top, | H. C. Frick Coke Company, | Fayette, | James Lynch, | Scottdale. |
| Union, | W. J. Rainey, | Westmoreland, | William Duncan, | Alverton. |
| Valley, | H. C. Frick Coke Company, | Fayette, | James Lynch, | Scottdale. |
| West Overton, | H. C. Overholt, | Westmoreland, | B. F. Overholt, | West Overton. |
| West Newton, | Osborne, Saeger & Co., | Westmoreland, | W. T. Allison, | West Newton. |
| Wick Haven, | Youghiogheny Mining Company, | Fayette, | Frank Morrison, | Banning. |
| White, | H. C. Frick Coke Company, | Fayette, | William C. Mullen, | Broad Ford. |
| Yough Slope, | Columbus Gas Coal Company, | Westmoreland, | Charles K. McCaffery, | West Newton. |

TABLE No. 2.—Gives the total number of tons of coal mined and tons of coke produced in each Colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Ninth Bituminous District, for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adelaide, | Fayette, | 238,500 | 158,642 | 2,874 | 570 | ..... | 267 | 239 | ..... | 2 | ..... | ..... | 4 | 16 | ..... | 342 |
| Amyville, | Westmoreland, | 17,300 | ..... | ..... | 400 | 16,900 | 120 | 107 | ..... | ..... | 20 | ..... | 3 | ..... | ..... | ..... |
| Browns No. 2, | Allegheny, | 109,351 | ..... | 222 | 389 | 108,740 | 147 | 235 | ..... | 2 | 100 | ..... | 5 | 15 | ..... | ..... |
| B. & O., | Fayette, | 76,768 | ..... | ..... | ..... | 76,768 | 365 | 33 | ..... | ..... | ..... | ..... | 2 | 3 | ..... | ..... |
| Banning, | Fayette, | 220,676 | ..... | 4,000 | ..... | 216,676 | 220 | 208 | ..... | 2 | 125 | 4,300 | 10 | 16 | ..... | ..... |
| Belle Bridge, | Allegheny, | 23,120 | ..... | ..... | 570 | 22,550 | 60 | 152 | ..... | ..... | 10 | ..... | 4 | 6 | ..... | ..... |
| Big Chief, | Westmoreland, | 54,221 | ..... | 90 | 60 | 54,071 | 98 | 156 | ..... | 1 | 10 | ..... | 1 | 6 | ..... | ..... |
| Buckeye, | Westmoreland, | 64,700 | 48,465 | ..... | 421 | ..... | 221 | 121 | ..... | ..... | ..... | ..... | 6 | 18 | ..... | 160 |
| Bessemer and Rising Sun, | Westmoreland, | 65,800 | 49,416 | ..... | 595 | ..... | 258 | 80 | ..... | ..... | ..... | ..... | ..... | 17 | ..... | 273 |
| Coal Brook, | Fayette, | 84,600 | 63,504 | 413 | 1,445 | ..... | 261 | 107 | ..... | 1 | ..... | ..... | 2 | 12 | ..... | 120 |
| Davidson Shaft, | Fayette, | 17,987 | 95,583 | 2,209 | ..... | ..... | 30 | 217 | 1 | ..... | ..... | ..... | 8 | 19 | ..... | 330 |
| Dexter, | Fayette, | 14,394 | 11,402 | ..... | 176 | ..... | 239 | 22 | ..... | ..... | 50 | 41 | ..... | 3 | ..... | 40 |
| Darr, | Westmoreland, | 353,847 | ..... | ..... | ..... | 353,847 | 212 | 358 | 5 | 4 | 700 | 2,100 | 10 | 20 | ..... | ..... |
| Dravo, | Allegheny, | 40,000 | ..... | ..... | 300 | 39,700 | 134 | 112 | ..... | ..... | 50 | ..... | ..... | 8 | ..... | ..... |
| Emma, | Westmoreland, | 13,775 | 9,819 | 136 | 270 | ..... | 235 | 27 | ..... | ..... | ..... | ..... | 1 | 2 | ..... | 36 |
| Enterprise, | Westmoreland, | 6,100 | 4,551 | 10 | 5 | ..... | 58 | 50 | ..... | ..... | ..... | ..... | 1 | 8 | ..... | 51 |
| Eureka, | Westmoreland, | 153,000 | ..... | 500 | 500 | 152,000 | 195 | 176 | 1 | ..... | 400 | ..... | 2 | 14 | ..... | ..... |
| Euclid, | Westmoreland, | 38,910 | 228 | 1,589 | 130 | 36,963 | 97 | 102 | ..... | ..... | 50 | ..... | 2 | 10 | ..... | 20 |
| Franklin, | Fayette, | 28,240 | 26,251 | 131 | 209 | ..... | 233 | 37 | ..... | ..... | 5 | ..... | 1 | 5 | ..... | 50 |
| Fort Hill, | Fayette, | 218,000 | 168,000 | 180 | ..... | ..... | 300 | 287 | 2 | 1 | 225 | ..... | 3 | 8 | ..... | 325 |
| Forrest Hill, | Allegheny, | 251,126 | ..... | 4,006 | 340 | 246,780 | 183 | 298 | ..... | 1 | 738 | 10 | 4 | 21 | 1 | ..... |
| Grace, | Fayette, | 194,146 | 130,038 | 1,049 | 1,049 | ..... | 279 | 377 | ..... | 1 | 650 | ..... | 3 | 17 | ..... | 407 |
| Gospel, | Allegheny, | 17,000 | ..... | 170 | 180 | 16,650 | 172 | 69 | ..... | ..... | 122 | ..... | 2 | 5 | ..... | ..... |
| Guffey, | Westmoreland, | 120,009 | ..... | ..... | ..... | 120,009 | 155 | 280 | ..... | ..... | 240 | 1,200 | ..... | 21 | ..... | ..... |
| Henry Clay, | Fayette, | 108,027 | 73,443 | 2,903 | 644 | ..... | 265 | 112 | ..... | 1 | 15 | ..... | 5 | 9 | ..... | 120 |
| Horner & Roberts, | Allegheny, | 55,000 | ..... | 100 | 100 | 54,800 | 155 | 139 | ..... | 1 | 100 | ..... | 3 | 7 | ..... | ..... |
| Home Works, | Fayette, | 11,082 | 9,110 | ..... | 605 | ..... | 222 | 12 | ..... | ..... | 25 | ..... | ..... | 1 | ..... | 20 |
| Jackson, | Fayette, | 46,936 | 30,226 | 397 | 1,200 | ..... | 310 | 48 | ..... | ..... | ..... | ..... | 1 | 6 | ..... | 58 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lynch, | Allegheny, | 4,000 | | | 4,000 | | 220 | 7 | | | 50 | | | 1 | | |
| Lovedale, | Allegheny, | 6,543 | | | | 6,543 | 26 | 92 | | | | | 3 | 4 | | |
| Mullin, | Westmoreland, | 55,254 | 41,516 | 1,286 | 2,081 | | 253 | 92 | | 1 | | | 1 | 9 | | 82 |
| Morgan, | Fayette, | 32,973 | 21,982 | | 2 | | 266 | 23 | | | | | | 2 | | |
| Ocean No. 1, | Westmoreland, | 131,254 | | | | 131,254 | 154 | 325 | 1 | 3 | 788 | 50 | 3 | 10 | 2 | |
| Ocean No. 2, | Allegheny, | 236,714 | | | | 236,714 | 171 | 477 | | | 1,421 | 1,500 | 3 | 29 | 1 | |
| Ocean No. 5, | Allegheny, | 94,450 | | | | 94,450 | 108 | 267 | | | 190 | | | 15 | | |
| Osceola, | Allegheny, | 60,950 | | 482 | | 60,468 | 120 | 151 | | | 90 | | 3 | 8 | | |
| Painter & Cornell, | Allegheny, | 44,600 | | | 25 | 44,575 | 130 | 102 | | | 100 | | | 6 | | |
| Port Royal Nos. 1 and 2, | Westmoreland, | 194,918 | 22,541 | 10,758 | 743 | 146,903 | 200 | 265 | 4 | 2 | 1,324 | | 14 | 30 | 1 | 60 |
| Plumer, | Fayette, | | | | | | | 82 | | | | | | | | |
| Pennsville, | Fayette, | 31,634 | 25,248 | 697 | 392 | | 223 | 55 | | | 34 | | 4 | 3 | | |
| Painter, | Fayette, | 133,824 | 100,368 | 732 | 944 | | 260 | 157 | | | 100 | | 4 | 22 | | 92 |
| Rainbow, | Fayette, | 148,111 | | | | 148,111 | 171 | 210 | | 3 | 100 | | 4 | 10 | | 228 |
| Rist, | Fayette, | 240,081 | 160,510 | 1,389 | | | 266 | 264 | | | 860 | | 4 | 30 | | 367 |
| Sarah, | Allegheny, | 8,893 | | 45 | 100 | 8,748 | 70 | 51 | | | | | 1 | 2 | | |
| Scottdale Steel Co., | Fayette, | 11,625 | | 11,625 | | | 140 | 27 | | | | | | 6 | | |
| Shaners No. 2, | Westmoreland, | 41,511 | | 600 | 60 | 41,511 | 130 | 106 | | | 50 | | 2 | 8 | | |
| Smithton No. 2, | Westmoreland, | 34,350 | 5,000 | 1,095 | 60 | 33,200 | 182 | 135 | | 1 | 728 | | 2 | 9 | | 117 |
| Sterling No. 1, | Fayette, | 17,049 | 11,567 | 122 | 25 | | 61 | 83 | | | 12 | | 2 | 8 | | 100 |
| Summit, | Fayette, | 36,025 | 23,338 | 68 | 91 | | 67 | 124 | 1 | | 30 | | 1 | 17 | | 222 |
| Tyrone, | Fayette, | 116,769 | 82,992 | 532 | 995 | | 310 | 103 | | 2 | 350 | | 1 | 14 | | 141 |
| Tip Top, | Fayette, | 27,065 | 18,711 | 9 | | | 77 | 96 | | | | | 1 | 14 | | 121 |
| Valley, | Fayette, | 202,459 | 128,618 | 1,122 | 416 | | 262 | 204 | | | 1,000 | | 4 | 18 | | 251 |
| West Overton, | Westmoreland, | 66,174 | 53,080 | | 398 | | 303 | 113 | | | | 40 | | 8 | | 110 |
| West Newton Shaft, | Westmoreland, | 192,484 | | 4 | | 192,484 | 184 | 246 | 2 | 3 | 360 | | 7 | 15 | | |
| Wick Haven, | Fayette, | 174,719 | | 2,200 | | 172,519 | 175 | 252 | 2 | 1 | 150 | | 6 | 12 | | |
| White, | Fayette, | 38,675 | 25,176 | 53 | 30 | | 79 | 130 | | | 100 | | 1 | 18 | | 200 |
| Yough Slope, | Westmoreland, | 48,666 | | 1,200 | 2,692 | 44,774 | 142 | 109 | | | 200 | | 3 | 5 | | |
| Total, | | 5,074,385 | 1,593,325 | 54,998 | 23,212 | 2,878,708 | 9,242 | 8,509 | 19 | 33 | 11,622 | 9,241 | 152 | 624 | 5 | 4,123 |

TABLE No. 3—Showing the number of each class of Employes at each Colliery in the Ninth Bituminous District, during the year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Fire bosses. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Adelaide | 1 | 2 | 117 | ..... | 10 | 1 | 11 | 142 | 1 | 4 | 6 | ..... | 84 | 2 | 97 | 239 |
| Amyville | 1 | ..... | 90 | 1 | 6 | 2 | 2 | 102 | ..... | 1 | ..... | ..... | 3 | 1 | 5 | 107 |
| Browns No. 2 | 1 | 2 | 180 | 6 | 13 | 2 | ..... | 204 | ..... | 4 | 5 | ..... | 20 | 2 | 31 | 235 |
| B. & O. | 1 | ..... | 22 | 4 | 2 | ..... | 1 | 30 | ..... | ..... | 1 | ..... | 1 | 1 | 3 | 33 |
| Banning | 1 | 2 | 160 | ..... | 14 | 3 | 6 | 186 | 1 | 3 | 6 | ..... | 10 | 2 | 22 | 208 |
| Belle Bridge | 1 | ..... | 125 | 1 | 5 | 1 | ..... | 133 | 1 | 1 | 1 | ..... | 15 | 1 | 19 | 152 |
| Big Chief | 1 | ..... | 130 | ..... | 6 | 3 | 8 | 148 | ..... | 1 | 1 | ..... | 5 | 1 | 8 | 156 |
| Buckeye | 1 | ..... | 58 | 2 | 5 | 1 | 7 | 74 | 1 | 2 | 5 | ..... | 37 | 2 | 47 | 121 |
| Bessemer and Rising Sun | 2 | ..... | 37 | ..... | 5 | 1 | 1 | 46 | ..... | 2 | ..... | ..... | 30 | 2 | 34 | 80 |
| Coal Brook | 1 | 1 | 54 | 2 | 5 | ..... | 3 | 66 | ..... | 1 | 1 | ..... | 38 | 1 | 41 | 107 |
| Davidson Shaft | 1 | 2 | 103 | ..... | 10 | ..... | 6 | 122 | 1 | ..... | 5 | ..... | 89 | ..... | 95 | 217 |
| Dexter | 1 | ..... | 10 | ..... | 2 | ..... | ..... | 13 | ..... | ..... | ..... | ..... | 8 | 1 | 9 | 22 |
| Darr | 1 | 2 | 275 | 5 | 20 | 2 | 10 | 315 | 1 | 5 | 6 | ..... | 30 | 1 | 43 | 358 |
| Dravo | 1 | ..... | 100 | 1 | 5 | 1 | ..... | 108 | 1 | 1 | ..... | ..... | ..... | 2 | 4 | 112 |
| Emma | 1 | ..... | 10 | 1 | 2 | ..... | ..... | 14 | 1 | ..... | ..... | ..... | 10 | 2 | 13 | 27 |
| Enterprise | 1 | ..... | 21 | 1 | 3 | ..... | ..... | 26 | 1 | 1 | 1 | ..... | 19 | 2 | 24 | 50 |
| Eureka | 2 | ..... | 135 | ..... | 14 | 3 | 6 | 160 | ..... | 2 | 2 | ..... | 10 | 2 | 16 | 176 |
| Euclid | 1 | 1 | 80 | ..... | 6 | 1 | 3 | 92 | ..... | 1 | 3 | 2 | 2 | 2 | 10 | 102 |
| Franklin | 1 | ..... | 15 | ..... | 3 | ..... | ..... | 19 | 1 | ..... | ..... | ..... | 16 | 1 | 18 | 37 |
| Fort Hill | 1 | 1 | 125 | 10 | 16 | 2 | ..... | 155 | 1 | 2 | 3 | ..... | 121 | 5 | 132 | 287 |
| Forrest Hill | 1 | 1 | 236 | ..... | 16 | 3 | 5 | 262 | 1 | 3 | 5 | ..... | 25 | 2 | 36 | 298 |
| Grace | 1 | ..... | 160 | 5 | 18 | 2 | 4 | 190 | 3 | 5 | 5 | ..... | 172 | 2 | 187 | 377 |
| Gospel | 2 | 1 | 51 | 4 | 2 | ..... | 2 | 62 | ..... | 1 | 1 | ..... | 3 | 2 | 7 | 69 |
| Guffey | 1 | 1 | 230 | ..... | 14 | 1 | 9 | 256 | ..... | 2 | ..... | ..... | 20 | 2 | 24 | 280 |
| Henry Clay | 1 | 1 | 51 | ..... | 7 | ..... | 4 | 64 | 1 | 1 | 4 | ..... | 41 | 1 | 48 | 112 |
| Horner & Roberts | 1 | ..... | 100 | 14 | 7 | 3 | 2 | 127 | 2 | 2 | 3 | ..... | 3 | 2 | 12 | 139 |
| Home Works | ..... | ..... | 6 | ..... | 1 | ..... | ..... | 7 | ..... | ..... | ..... | ..... | 4 | 1 | 5 | 12 |

| | | |

TABLE No. 4—List of Fatal Accidents that occurred in and about the Mines of the Ninth Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Jan. 9, | Jacob Kromer, ..... | Miner, ..... | 53 | M. | 6 | Davidson Shaft, ..... | Fayette, ..... | Fatally injured by fall of coal roof; died 3 hours after. |
| 21, | Valentine Baltic, ..... | Miner, ..... | 37 | M. | 3 | West Newton Shaft, ... | Westmoreland, .... | Fatally injured by fall of slate; died next day. |
| Feb. 6, | John Kuryzike, ..... | Miner, ..... | 41 | M. | 2 | Port Royal, ..... | Westmoreland, .... | Fatally injured by a fall of slate; died the following day. |
| 17, | Domenick Denard, ..... | Miner, ..... | 43 | M. | 3 | Darr, ..... | Westmoreland, .... | Fatally injured by a fall of slate; died 4 weeks after. |
| Mar. 8, | Napolean Terella, ..... | Miner, ..... | 32 | M. | 3 | Ocean No. 1, ..... | Westmoreland, .... | Killed almost instantly by a fall of slate. |
| 27, | Steve Katula, ..... | Miner, ..... | 35 | M. | 3 | Fort Hill, ..... | Fayette, ..... | Killed almost instantly by a fall of roof coal and slate. |
| April 2, | Frank Reicke, ..... | Miner, ..... | 44 | M. | 7 | Port Royal, ..... | Westmoreland, .... | Instantly killed by a fall of slate. |
| May 3, | Andy Holan, ..... | Miner, ..... | 36 | M. | 4 | West Newton Shaft, ... | Westmoreland, .... | Instantly killed by a fall of slate. |
| 4, | August Geiring, ..... | Miner, ..... | 38 | M. | 9 | Eureka, ..... | Westmoreland, .... | Fatally injured by a fall of coal; died the following evening. |
| 14, | Joseph Auditano, ..... | Miner, ..... | 30 | M. | 2 | Wick Haven, ..... | Fayette, ..... | Instanty killed by a fall of slate. |
| 17, | Mervin Thompson, ..... | Trapper, ..... | 17 | S. | .... | Fort Hill, ..... | Fayette, ..... | Instantly killed by being caught between two loaded trips. |
| 20, | John Sabina, ..... | Miner, ..... | 28 | M. | 4 | Port Royal, ..... | Westmoreland, .... | Fatally injured by the cage; died six hours after. |
| June 4, | John Mattus, ..... | Miner, ..... | 45 | S. | .... | Port Royal, ..... | Westmoreland, .... | Instantly killed by a fall of slate. |
| " 8, | Ricardo Roka, ..... | Miner, ..... | 35 | M. | 4 | Darr, ..... | Westmoreland, .... | Fatally injured by a loaded trip; died the following day. |
| Oct. 11, | Lewis Bucsak, ..... | Miner, ..... | 40 | M. | .... | Darr, ..... | Westmoreland, .... | Instantly killed by a fall of slate. |
| 22, | John Petrick, ..... | Miner, ..... | 43 | M. | 3 | Darr, ..... | Westmoreland, .... | Instantly killed by a fall of roof coal and slate. |
| 28, | Frederick Blume, ..... | Miner, ..... | 37 | M. | 2 | Summit, ..... | Fayette, ..... | Instantly killed by a fall of roof. |
| Nov. 9, | Mike Cergel, ..... | Miner, ..... | 37 | S. | .... | Wick Haven, ..... | Fayette, ..... | Instantly killed by a fall of slate. |
| Dec. 8, | Mike Ruggish, ..... | Miner, ..... | 20 | S. | ... | Darr, ..... | Westmoreland, .... | Fatally injured by a fall of slate. |

TABLE No. 5—List of Non-Fatal Accidents that occurred in and about the Mines of the Ninth Bituminous District, for the year ending December 31, 1897.

| Date of accident | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Jan. 13. | Henry Metzgan, | Driver, | 20 | S. | Henry Clay, | Fayette, | Arm broken and scalp wounds by runaway trip. |
| 26. | Mike Junic, | Miner, | 26 | M. | Mullin, | Westmoreland, | Leg broken by a fall of slate. |
| 26. | Owen Moran, | Miner, | 40 | S. | Rainbow, | Fayette, | Hip joint dislocated and skull fractured by a fall of slate. |
| Feb. 5. | Andy Feffick, | Miner, | 49 | M. | Moreland Slope, | Fayette, | Leg broken by a fall of slate. |
| 9. | Charles Tomiko, | Miner, | 33 | M. | Manning, | Fayette, | Leg and arm broken by fall of slate and coal. |
| 16. | Steve Louis, | Miner, | 40 | S. | Adelaide, | Fayette, | Ankle broken by a fall of roof coal. |
| 27. | Mike Pates, | Miner, | 36 | M. | Adelaide, | Fayette, | Ankle broken by a fall of roof coal. |
| Mar. 22. | Andrew Swanson, | Miner, | 29 | S. | Wick Haven, | Fayette, | Arm broken by a fall of roof coal. |
| May 1. | Steve Dunbar, | Miner, | 37 | M. | Browns No. 2, | Allegheny, | Hip crushed by a fall of slate. |
| 25. | Peter Chinearin, | Miner, | 24 | S. | Big Chief, | Westmoreland, | Body badly crushed by slate. |
| 26. | John Newhess, | Miner, | 26 | S. | Forrest Hill, | Allegheny, | Back injured by a fall of slate. |
| June 2. | Henry Dobritz, | Laborer, | 17 | S. | Smithton, | Westmoreland, | Leg broken by a loaded wagon. |
| 2. | Joseph Lagler, | Miner, | 55 | S. | Rainbow, | Fayette, | Head severely cut by slate. |
| 4. | William Hileman, | Miner, | 22 | S. | Banning, | Fayette, | Ankle broken and body hurt by a fall of coal. |
| 5. | John Smith, | Miner, | 35 | M. | West Newton Shaft, | Westmoreland, | Head and neck severely injured by a fall of slate. |
| 7. | Jacob Shedsky, | Miner, | 39 | M. | Port Royal, | Westmoreland, | Ankle broken by a fall of slate. |
| 14. | Cola Caskey, | Miner, | 37 | M. | Port Royal, | Westmoreland, | Face, hands and back burned by explosive gas. |
| July 1. | Carmin Calderek, | Miner, | 28 | M. | Ocean No. 1, | Westmoreland, | Body badly injured by a fall of coal. |
| 16. | J. F. Hull, | Miner, | 25 | M. | Coal Brook, | Fayette, | Leg badly fractured by a fall of roof coal. |
| 27. | William Monks, | Miner, | 35 | M. | Horner & Roberts, | Allegheny, | Ankle broken and back cut by a fall of roof. |
| 29. | Mike Babick, | Miner, | 23 | S. | Grace, | Fayette, | Face and hand burned by a blown out shot. |
| Sept. 7. | Joseph Schacto, | Miner, | 49 | M. | Ocean No. 1, | Westmoreland, | Three ribs broken and face injured by a blown out shot. |
| 12. | Steve Matto, | Miner, | 29 | M. | Darr, | Westmoreland, | Leg broken by a fall of slate. |
| 23. | Frederick Sheble, | Miner, | 52 | M. | West Newton Shaft, | Westmoreland, | Three ribs broken by a fall of slate. |
| 24. | John Pudd, | Miner, | 37 | M. | Darr, | Westmoreland, | Leg broken and body bruised by slate. |

TABLE 5—Continued.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|
| Sept. 30. | Bart Fibower, | Miner, | 45 | S. | Tyrone, | Fayette, | Shoulder fractured by a post which was moved by wagon. |
| Oct. 6. | Steve Kita, | Miner, | 42 | M. | Darr, | Westmoreland, | Leg broken by a fall of slate. |
| 12. | Thomas Stout, | Miner, | 40 | M. | Tyrone, | Fayette, | Ankle broken by a loaded wagon. |
| 12. | John Bealy, | Miner, | 37 | S. | Ocean No. 1, | Westmoreland, | Foot broken by an empty wagon. |
| 12. | John Henyoke, | Driver, | 24 | S. | Darr, | Westmoreland, | Foot badly injured by a loaded wagon. |
| 23. | Frank Shable, | Miner, | 26 | S. | West Newton Shaft, | Westmoreland, | Body bruised by a fall of slate. |
| Nov. 11. | John Emery, | Miner, | 42 | S. | Rainbow, | Fayette, | Leg badly injured by a fall of slate. |
| Dec. 17. | Henry Larey, | Miner, | 22 | S. | Browns No. 2, | Allegheny, | Collar bone broken by an empty wagon. |

# Tenth Bituminous District.

(HUNTINGDON, BEDFORD, FULTON AND BLAIR COUNTIES, AND THOSE PARTS OF CLEARFIELD, CAMBRIA AND INDIANA COUNTIES LYING ADJACENT TO THE BELLS GAP RAILROAD, AND THOSE PARTS OF CLEARFIELD, CENTRE AND CLINTON COUNTIES LYING ADJACENT TO THE BEECH CREEK RAILROAD.)

---

Altoona, February 14, 1898.

Hon. James W. Latta, Secretary of Internal Affairs, Harrisburg, Pa.:

Sir: In accordance with the provisions of the Bituminous Mine Law, I have the honor of submitting to you the report for the Tenth bituminous district for the year ending December 31, 1897.

The condition of the coal trade has been good during the year, and a large quantity of coal has been shipped. The general condition of the mines as regards ventilation and drainage was good on the whole, especially in the large operations, for it is at the small operations where we find the most difficulty, as some of these are leased by men of small capital, who feel that improvements they make for ventilating the mine is so much money taken out of their pockets uselessly, for in undertaking to work the small mines, they seem to think that ventilation and drainage are the last things they must take into account in their calculations, and it is with such we have to contend in enforcing the law. The number of fatal accidents during the last year was seven, as compared with five for the preceding year. Of these, six were due to falls of coal, slate and rock, and the seventh man was killed by being caught between the coke larry and a post. The deaths of three men by falls of slate was owing to their not exercising any precaution whatever to see that the roof was safe, but they took the chances of the roof not falling, and paid the penalty with their lives.

One new mine has been opened during the year, and at another mine a tail rope haulage plant has been put in, and the prospects for the coming year are that several companies will equip their mines with coal cutting machines, for competition is so close that it is only

a question of time before they will all have to resort to machine mining or else go out of the business.

The number of miners in this, as well as other districts, is always greater at each mine than is really necessary for the production of the quantity of coal needed by the operator, and in places where the majority of the miners are employed this is necessary, as they have so many holidays during the year, and as each holiday means a drinking day for them, the result usually is that each man loses, perhaps, a couple of days, and the mine has to be shut down in consequence of there being no men at work, so that the operator, to protect himself, employs more men than are necessary for the quantity of coal he needs. But there are places where the miners are nearly all English speaking men, yet, at these mines, the number of miners is in excess of what are needed for the quantity of coal required, and the result is that the men's earnings are very small in the aggregate. In consequence of this, one of the managers at a mine in this district, resolved that he would employ only enough men to give him the amount of coal he needed daily, and he did so and kept an account of the men's earnings for the whole year, and it showed the difference in the earning capacity of miners when they are all working under conditions that are exactly alike, so far as the thickness of the seam, hardness of the coal and distribution of cars for each miner is concerned.

The name of the mine is omitted for obvious reasons, and in the table which follows I have designated the miners by numbers instead of using their names, and so the following table and figures are submitted, and will, I trust, prove interesting:

Number of employes earning less than $100 by reason of leaving, and from work on improvements being completed. These are mostly men employed doing temporary work outside:

| | | |
|---|---|---|
| 1, ..... | $52 31 | Commenced work in November. |
| 2, ..... | 55 74 | Left in February. |
| 3, ..... | 15 00 | Left in January. |
| 4, ..... | 86 07 | Gone. |
| 5, ..... | 81 22 | Gone. |
| 6, ..... | 93 92 | Gone. |
| 7, ..... | 99 72 | Gone. |
| 8, ..... | 76 50 | Gone. |
| 9, ..... | 4 00 | Gone. |
| 10, ..... | 67 | Gone. |
| 11, ..... | 77 00 | Gone. |
| 12, ..... | 95 42 | Gone. |
| 13, ..... | 12 65 | Gone. |
| 14, ..... | 15 10 | Commenced work in December. |
| 15, ..... | 7 70 | Gone. |
| 16, ..... | 17 60 | Gone. |
| 17, ..... | 59 36 | Gone. |

| | | |
|---|---|---|
| 18, | 34 70 | Gone. |
| 19, | 16 00 | Commenced work in December. |
| 20, | 39 82 | Gone. |
| 21, | 54 30 | |
| Total, | $994 80 | |

Number of employes earning between $100 and $200:

| | | |
|---|---|---|
| 1, | $183 29 | Trapper boy. |
| 2, | 170 85 | Commenced work September. |
| 3, | 131 00 | Gone. |
| 4, | 101 98 | Gone. |
| 5, | 120 44 | Gone. |
| 6, | 117 78 | Gone. |
| 7, | 117 50 | Gone. |
| 8, | 163 85 | Commenced work October. |
| 9, | 160 48 | Commenced work October. |
| Total, | $1,267 17 | |

Number of employes earning between $200 and $300:

| | | |
|---|---|---|
| 1, | $260 00 | Gone. |
| 2, | 289 16 | Gone. |
| 3, | 226 44 | Commenced work in July. |
| 4, | 241 69 | Trapper boy. |
| 5, | 252 49 | Gone. |
| 6, | 255 19 | Gone. |
| 7, | 271 29 | Gone. |
| 8, | 231 90 | Gone. |
| 9, | 232 60 | Trapper boy. |
| 10, | 280 27 | Gone. |
| 11, | 251 39 | Boy. |
| 12, | 285 78 | Common labor part time. |
| Total, | $3,078 20 | |

Number earning between $300 and $400, mostly common laborers and men who work irregularly:

| | | |
|---|---|---|
| 1, | $491 23 | |
| 2, | 362 14 | Began work in January; never mined before |
| 3, | 372 46 | Irregular work. |
| 4, | 337 83 | Fireman part time at boiler. |
| 5, | 348 30 | Irregular work. |
| 6, | 391 59 | Breaking coal outside. |
| 7, | 328 57 | Sickly man, works irregularly. |
| 8, | 387 45 | Irregular man. |

| | | |
|---|---|---|
| 9, | 375 77 | Breaking coal outside. |
| 10, | 384 96 | Breaking coal outside. |
| 11, | 370 65 | Working part time. |
| Total, | $4,150 95 | |

Number earning between $400 and $500:

| | | |
|---|---|---|
| 1, | $439 50 | Carpenter. |
| 2, | 406 69 | Miner. |
| 3, | 490 63 | Miner. |
| 4, | 405 78 | Miner. |
| 5, | 491 02 | Miner. |
| 6, | 469 51 | Miner. |
| 7, | 404 62 | Miner. |
| 8, | 456 33 | Miner. |
| 9, | 465 97 | Miner. |
| 10, | 468 60 | Miner. |
| 11, | 466 01 | Miner. |
| 12, | 497 77 | Miner. |
| 13, | 493 15 | Miner. |
| 14, | 499 83 | Miner. |
| 15, | 422 54 | Miner. |
| 16, | 477 45 | Miner. |
| 17, | 438 64 | Miner. |
| Total, | $7,794 04 | |

Number earning between $500 and $600:

| | | |
|---|---|---|
| 1, | $572 41 | |
| 2, | 547 19 | |
| 3, | 566 22 | |
| 4, | 535 63 | |
| 5, | 566 10 | |
| 6, | 577 04 | |
| 7, | 557 10 | |
| 8, | 593 10 | |
| 9, | 575 75 | Boy with father allowed one-half turn. |
| 10, | 212 89 | |
| 11, | 530 25 | |
| 12, | 567 01 | |
| 13, | 531 35 | |
| 14, | 536 85 | |
| 15, | 530 28 | |
| 16, | 526 72 | |
| 17, | 595 35 | |
| 18, | 369 34 | Boy with father. |
| 19, | 573 25 | |
| 20, | 541 91 | |

| | | |
|---|---|---|
| 21, ..... | 231 41 | Boy with father allowed half a turn. |
| Total, ..... | $10,837 15 | |

Number of turns, 20.

Number of those earning between $600 and $700.

| | | |
|---|---|---|
| 1, ..... | $641 86 | Father and two boys, one all the year and the other only one month. |
| 2, ..... | 387 49 | |
| 3, ..... | 35 44 | |
| 4, ..... | 612 52 | Father and son. |
| 5, ..... | 231 86 | |
| 6, ..... | 614 86 | |
| 7, ..... | 776 37 | Father and son. |
| 8, ..... | 470 62 | |
| 9, ..... | 650 00 | |
| 10, ..... | 603 65 | |
| 11, ..... | 620 22 | |
| 12, ..... | 612 22 | |
| 13, ..... | 610 24 | |
| 14, ..... | 356 74 | |
| 15, ..... | 663 97 | |
| 16, ..... | 239 96 | |
| 17, ..... | 607 59 | |
| 18, ..... | 656 20 | |
| 19, ..... | 627 86 | |
| 20, ..... | 377 25 | |
| 21, ..... | 708 53 | |
| 22, ..... | 386 37 | |
| 23, ..... | 371 36 | |
| | 682 26 | Contractor for ties, etc. |
| Total, ..... | $12,545 44 | |

Number of turns, 20.

Averages, viz:

| | |
|---|---|
| 17 men earning $7,794.04; average, ..... | $458 48 each |
| Number of days mine running, ..... | 307 |
| Average per day, ..... | $1 49.3 |
| 20 men earning $10,837.15, average, ..... | $541 85 |
| Number of days running, ..... | 307 |
| Average per day, ..... | $1 76.8 |
| 23 men earning $11,863.18. | |
| Equivalent to 20 men, average, ..... | $593 15 |
| Number of days, ..... | 307 |
| Average per day, ..... | $1 93.2 |

In the above, there are, in all, sixty-one men or names. Some of these are boys, for whom half turns are allowed in some cases and in others whole turns, according to age. Since April 1, the time and tonnage of every one, men and boys, have been kept separate, the miners allowing what is right, according to their ideas as to earnings of their boys. We have joined them together, according to families, as it is impossible to ascertain each separately. In the averages, we have allowed according to the turns, which is as near correct as we can get it.

The mine has been open every working day in the year.

We base the average upon the supposition that each man worked every day the mine was in operation, viz., 307, which is, of course, not correct, as not one of them worked every day, and a great many lost from ten to fifteen days during the year, and an average of 295 would be nearer correct to get at the actual time worked by each man. Even with this basis, which is against us, the average earnings are large and shows what a miner can earn.

## Abstract of Work at Mine for 1897.

| | | |
|---|---|---|
| Total number of men and names on the pay rolls during the year, | | 114 |
| Total wages earned during the year for all work, mining and improvements at mine, | | $41,567 75 |
| Deduct from this amount paid contractor for furnishing timber during the year, | $682 26 | |
| Salary of mine boss, | 900 00 | |
| | | 1,582 26 |
| Net amount for actual labor, | | $39,985 49 |
| Viz: | | |
| 21 employes' earnings below $100.00, | | $994 80 |
| 9 employes between $100.00 and $200.00, | | 1,267 17 |
| 12 employes between $200.00 and $300.00, | | 3,078 20 |
| 11 employes between $300.00 and $400.00, | | 4,150 95 |
| 53 Total, | | $9,491 12 |
| Of these men: | | |
| 29 were discharged during year, | | $3,340 39 |
| 9 began work during year, | | 1,167 17 |
| 4 boys, | | 908 97 |
| 4 laborers outside part, | | 1,384 34 |
| 7 miners working irregularly, | | 2,690 25 |
| 53 Total, | | $9,491 12 |
| 17 men earning between $400.00 and $500.00, | | $7,794 04 |
| 21 men earning between $500.00 and $600.00, | | 10,837 15 |
| 23 men earning between $600.00 and $700.00, | | 11,863 18 |
| 114 Total, | | $39,985 49 |

It will be seen from the following summary that the production of coal is much greater, and the number of employes, also, is greater than last year. The usual tables and a description of the mines and their condition follows. The report is respectfully submitted.

R. HAMPSON.

## Summary of Statistics.

| | |
|---|---|
| Number of mines in the district, reported, | 62 |
| Total quantity of coal produced, | 3,261,976 |
| Total quantity of coke produced, | 191,882 |
| Quantity used for steam and heat, | 20,826 |
| Quantity sold to local trade and employes, | 23,537 |
| Quantity shipped by rail, | 2,929,281 |
| Total number of persons employed, | 5,493 |
| Aggregate number of days worked during the year, | 12,162 |
| Number of fatal accidents, | 7 |
| Number of non-fatal accidents, | 18 |
| Number of tons per fatal accident, | 465,996 |
| Number of tons per non-fatal accident, | 181,220 |
| Number of kegs of powder used, | 20,171 |
| Number of pounds of dynamite used, | 12,545 |

## DESCRIPTION OF MINES.

### Gazzam Mines.

These mines are located at Gazzam on the Beech Creek railroad, and at the present time there are two mines working, and the greatest number of miners are employed in the No. 1 mine. In this mine the seam will vary from seventeen to forty inches in thickness, with a very good slate roof over it. Where the thick coal is found is in the bottom of the swamps that are found in the mine, and as many of these swamps are below the level of the drift mouth, it makes it a hard mine to drain properly and owing to the low seam of coal a great deal of roof or floor has to be blasted to make height for the mules; in consequence of this, the headings do not look as neat as in places where little or no rock is blasted down. The system of working is heading and aircourse, and rooms are turned off from the heading, and in some cases from the air course, where the grade is favorable for the purpose, and the rooms in each case are driven up for a distance of sixty yards, and then the pillar is pulled back. The ventilation of the mine was very good during the year, as the Stine fan is doing excellent work. The sanitary condition was also good.

No. 4 mine is located a mile from Gazzam over the hill, and they

have had trouble in this mine from the commencement owing to the coal in many places pinching nearly out, and in having so many swamps, so the only workable coal they could get was found by following in the troughs of the swamps. During the last summer, the coal was so much narrowed down that the management concluded to finish the mine and they are now engaged in bringing out the room pillars, and the heading pillars, and at the present rate of working it will not last more than one year at the utmost. The ventilation was very good during the year, and everything is well attended to about the mine.

O'Shanter Mines.—These mines are located about one mile from Mitchell station, on the Beech Creek railroad, and are two in number. No. 1 mine will average three feet in thickness of coal, with a band of cannel coal running from four to twelve inches in thickness on the top of the coal and next the roof, which coal is thrown into the gob as being worthless. The method of working is heading and air course, and rooms are turned off the heading and driven up sixty yards, and the pillar is then drawn back. This mine will not last much longer as they are pulling out the heading pillars, and also the room pillars that have been left. The ventilation, at the beginning of the year, was not very good, but on my later visits it was in a fairly good condition, which was owing to the main air course having been closed up, and they were obliged to make a new one. In No. 2 mine, work has been confined to pulling out the heading pillars, and it is also nearly worked out.

This company did some work during the year at the Plane mine, at Mitchell station, and as soon as the two old mines are worked out, they will transfer their operations to that mine, and they will put in a new opening that will strike the present face of the workings, so that it will then be a comparatively new mine.

Bloomington.—These mines, two in number, are working the same vein as the O'Shanter people, and the characteristics of the seam, as regards height and roof are the same and there is the same cannel coal found on top of the seam, and the method of working is also the same in every respect.

In No. 3 mine they have done very little heading work during the year, as on one side of the mine the headings had cut into No. 4 mine, or worked up to an adjoining property. In the dip workings the ventilation was found in a good condition, but in the workings known as "Wood," the ventilation was not good on the first visit, but was in good condition on the subsequent visits.

In No. 4 mine the ventilation of the larger portion was good; the other portion was not quite up to the standard at the first visit, but was much improved at the later visits. They have a large Brazil fan for ventilating these two mines, which is capable of doing good work.

They have a great deal of trouble by water on the right of the main heading, and as it would have cost too much to get it out by water cars, and being too far away for steam to be used, they put a gasoline pump in one of the old headings and it is now doing good work and keeps the dip clear of water. As regards the new slope, very little work was done in it during the year, but they had some miners at work a portion of the year driving up from the lower end, so as to avoid cost of pumping and they will not rush matters until times show some signs of improvement, and then they will push it through the hill.

Kyler.—This mine is located a short distance from Munson station, on the Beech Creek railroad, and here the seam will average three feet of workable coal, with a bone coal one foot thick on the bottom and the same thickness of bone coal next the roof, so the merchantable coal is in the middle. In the headings this bone coal is taken down, and it makes a good height for heading, and in the room the top bone is taken down so as to make a height for the miners to load cars; the rest of the bone is propped up. The method of working is heading and air course, and the rooms are turned off the heading, and, when driven to their destination, the pillar is pulled back. This mine was idle on my first and second visits, and on the other visits, the ventilation was not very good in one portion of the mine, but the other part was all right and they were endeavoring to get the mine in good condition all around. This mine is now in over a mile, and they cannot drive very far on the right before they strike the adjoining property, and on the left they may get perhaps twenty rooms and then run against a fault.

Royal Slope.—This mine is located one mile from Munson station, on the Beech Creek Railroad, and the same seam of coal is worked as at Kyler. The method of working is a little different here, for where the ground will admit, the three heading system is practiced, and rooms are turned off the headings right and left, and the ventilation of both the headings is then carried in the center one. In the other portions of the mine the double heading, and heading and air course plans are followed, just as the nature of the ground will permit. They have got the slope down to the property line and are now following along the line with a heading, from which cross headings are driven up the grade, and the intention is to work out all the coal in the dip portion of the mine as soon as possible, which will allow the coal lying near the opening to be worked out last. They have much trouble with water and have to use steam pumps to keep the dip clear of it. They also have trouble with a poor roof, and a great deal of timber has to be used to keep the places safe. They have a good Brazil fan, and the ventilation was very good at the different visits made during the year.

Douglas Slope.—This mine adjoins the above mentioned, and is on the same vein and the general plan of working is the same. They worked only a part of the year, and the ventilation was found to be good at the different visits made to the mine.

Harts.—This is a small mine and only during the winter months for a short period does it come under the provisions of the law, but it was found in very fair condition whenever I have visited it.

Forest.—This mine adjoints the Kyler mine, and in some portions the two mines are cut into each other, and the same thickness of coal and general characteristics prevail as at Kyler. They have a great deal of trouble with faults in this mine, there being several small ones and then a big one throwing the coal down in most places twenty-six feet, so that it will be necessary, at some future time, to get an opening behind the fault so as to win the largest portion of the coal in the property. They did not work very much during the first part of the year, but on each visit the ventilation of the mine was good. They have done little work in the new opening, and at my last visit they transferred the miners into No. 1 mine.

Winburne.—This mine is located one mile from Winburne station, on the Beech Creek railroad, and has worked fairly well during the year. The ventilation and the drainage were always found in good condition at the visits made to the mine. They have started work in a mine that was stopped several years ago on account of its going to the dip, and they took in a big lift of bottom so as to get as near the bottom as they possibly could, and now they are opening up the mine as fast as possible. They have made connections with the mine where the fan is located and after awhile the fan will be located at a more convenient point than at present. This is the same vein and the same method is followed as at the mines at Munson.

Grass Flat.—There are four mines, Grass Flat, Knox Run, Moravian and Pleasant Hill, all located on a branch road, which leaves the Beech Creek railroad at Viaduct station. The vein and general characteristics are the same as the mine last mentioned. The Grass Flat mine is the largest and also the oldest mine of the four, and the coal is hauled out by the tail rope system, and the present length of the haulage is nearly one and a quarter miles. The ventilation and the drainage were very good during the year, and things are well looked after. They have much trouble with water, so they have, for years, been following the workings with a water level which has so far enabled them to drain the mine without steam power. The fan used for ventilation also ventilates the Pleasant Hill mine.

Pleasant Hill.—This mine adjoins the last mentioned one and the same characteristics prevail here. The ventilation and drainage were very good during the year. The workings on the south side of the main heading go to the dip for a portion of the dis-

tance and are drained by a water level, the same as in Grass Flat mine. The main heading is now standing in a dip, and a cross heading will be driven from water level to drain the face of the main heading. They are now opening up quite a body of coal to the north of the main heading.

Knox Run.—This mine is located one mile from Grass Flat mine, and the thickness and character of the seam are the same. They have pushed the headings a great deal during the year, and have a good body of coal now opened up, and are now developing the coal to the right of the main heading. The ventilation, during the early part of the year, was not very good, but they have put down a shaft near the face of the workings and now the mine is in excellent condition.

Moravian.—Next to Grass Flat, this is the oldest mine of the four, and it is now in a long distance, and the workings to the left of the main heading went to the dip so fast that it was very hard to get the coal out of that portion of the mine, but now they have made a water way into a hauling drift, and this will make a comparatively new mine, as a new main heading is being driven up the dip, and cross headings to the right and left are being turned from it, and in a short time a new ventilating shaft will be sunk near the face of the workings. The ventilation and drainage were good during the year, and everything was well looked after.

Sugar Camp.—These mines are located at Snow Shoe and the coal is shipped over the Pennsylvania railroad. The mines have worked very well during the year, and they have shipped a large quantity of coal from the different openings.

In No. 2 mine considerable heading has been driven and they have also taken up a large stretch of bottom for drainage. The ventilation was very good during the year. In No. 3 mine, the work is nearly all confined to drawing out pillars, but the mine will last for quite a long time yet as the headings are of great length and the coal is high as compared with the other openings. The ventilation was fairly good. In No. 4 mine, they have pushed the headings very fast, and have a large quantity of coal opened up. This is the largest mine they own, and they have kept the ventilation in good condition during the year. They have put in a new opening to get at a spur of coal they could not reach from No. 4, and the main heading will soon be cut into No. 4 mine.

Careytown.—This mine has worked very well during the year, and as the solid coal is worked out, they are now bringing back the room and heading pillars, and it will be cleaned out by next spring. The ventilation and drainage were very good.

Cherry Run.—This mine is located about three miles from Snow Shoe, and the coal will average about three feet in thickness, and

they are still having trouble with rolls and clay veins, which makes it a difficult mine to work properly, and they also have trouble with water. They worked very well during the year, and the quantity of coal shipped was large for a mine of this character. The ventilation and drainage were good during the year.

Cato.—This mine is located on the Beech Creek railroad, and very little work was done during the year. I visited the mine only once, when the ventilation was fairly good. They have put in a new opening and have cut off the haul from the dip workings. They are also putting in a new furnace for the new opening.

Glen White.—This mine is located three miles from Kittanning Point, on the Pennsylvania railroad, it is a slope mine and the coal is hauled from the slope by a tail rope, and after being dumped it is then run down by a rope more than a mile, and is then taken up by mule team, and hauled to the top of a plane, and dropped down to the tipple, where it is screened and the fine coal is used in the coke ovens. They have driven the slope down a long distance and made a new double parting and turned off main headings; from these main headings, cross headings will be driven up grade and the rooms turned right and left on the level. They have much trouble with clay veins and water and have steam pumps to keep the mine clear and they are pushing the slope so as to connect with the workings of the Amsbry mine; and when this is finished, the water will run out by gravity. The ventilation was good during the year.

Horse Shoe.—This mine is located nearly three miles from Kittanning Point, and they are working the Miller seam, and here the bottom is very soft and the sand rock above the coal is very thick and heavy, with the result that in one pair of headings, when the rooms were worked up and the pillars were being pulled back, a squeeze came on and closed up the headings so that they were compelled to get the coal from another point. They also encountered a big roll and have been compelled to go around it, so that the mine is not in as good condition as the management could wish it, but they had to work according to the lay of the ground. The ventilation and drainage of the mine were good.

Delaney.—This mine is worked by the same company that operated the Horse Shoe mine, but it is on the four-foot vein. There is a slope running through the hill, and a part of the workings are in the slope, and the other two openings are in the hills beyond the bottom of the slope. The coal is hauled from the different openings by means of the haulage rope that hauls from the slope workings. The double heading, and the three heading system is in vogue here, and the rooms are driven for a distance of 100 yards, and then the pillars are pulled back. They have worked very steadily, and the ventilation in the different openings was very good during the year.

East End.—This mine is located at the east end of the Gallitzin tunnel, on the Pennsylvania railroad; the coal is reached by a slope and the tail rope system of haulage is in vogue. At present, the slope is down to the third lift, but they are hauling coal only from two lifts. The system of working is heading and air course, and the rooms are driven up grade for 100 yards, and the pillars are left in until the final working, as they would not be able to handle the water if the pillars were pulled out. The mine worked steadily during the year, and they opened up a good deal of ground, and the ventilation was found in good condition at the different visits. They also moved the fan to a new shaft that was sunk, and have fitted up the shaft with stairs for a traveling way, as the old traveling had become dangerous by reason of its passing through old workings.

Lemon.—This mine is working on the same vein as the East End mine and the method of working the headings and rooms is the same. The mine is getting in a long distance, and the haul outside is also long. The roof in this mine is not so good as in the other mines and the miners have to exercise more care. The ventilation, on the first visit, was not very good, but was better on the subsequent visits. They are expecting, in a short time, to cut into an old mine and, when this is done, a new shaft will be put down and either a fan or a good furnace will be put in for ventilating purposes, for the present furnace is nearly a mile away from the face of the work and cannot ventilate the mine much longer.

Bradley.—This mine is working on the Miller seam, and the method is heading and air course, and double heading, and they have worked steadily during the year, but, owing to the long haul, the production is limited. This is a brushing coal, and no powder is used only in the headings, and the ventilation was always found in very good condition. They have put down a shaft at the outcrop of one of the headings, which will improve the mine during the coming year.

Porter.—This is a shaft mine and is working the same vein as the Bradley, and lies to the dip of the Bradley and the two mines are connected at different places. The method of working here was single heading, with the rooms turned off on both sides of the heading, then driven up a distance of seventy yards, and the pillars were left in, and so, for the last two years, these pillars have been the main portion of work. The general condition of the mine was very fair.

Robertsdale.—This mine is located on the East Broad Top railroad, a narrow gauge road running from Mt. Union, on the Pennsylvania railroad, to Robertsdale. The mine is a slope which has been in operation for over twenty years, and the area from which the coal has been taken is very large. The seam here is a double one, the lower bench being four feet in thickness, then a band of slate running from four

inches to fourteen feet in thickness, then a seam of coal three feet in thickness with a hard sandstone roof. The mode of working is to drive the heading in the bottom bench, and the air way in the top bench, with holes through the rock at every thirty feet, except when the rock is over eight feet in thickness, and then the airway is driven on one side of the heading. The rooms are driven forty feet in width, with a thin pillar between each room, and up for 100 yards, then the props are cut, or shot out, and the middle bench of rock and the top bench of coal allowed to fall. Then a new road is started from the mouth of the room to the top of the fallen rock, and the coal is then loaded out, and it is no uncommon sight to see from twelve to fifteen hundred tons of coal down at one time. They have much trouble with steep rolls, and there is a large quantity of water in the dips thus formed, and they have pumps worked by compressed air in these dips; at the foot of the pumping shaft there are very large and powerful steam pumps. The general condition of the mine was good during the year.

Woodvale Shaft.—This is a shaft mine, owned and operated by the same company which operates the Robertsdale mine, and is located about one mile from the slope, the two mines having been connected on the inside during the past year, and now they allow a large body of water to flow to the foot of the Woodvale shaft and it is pumped from that point, as they have two large and powerful steam pumps capable of handling the large amount of water that sometimes accumulates in the mine. The general plan of working is the same as at Robertsdale, and they also have much trouble with steep rolls, which makes it an expensive mine to work. The ventilation and drainage of the mine were very good during the year. The hoisting engines that have been in use since the shaft was sunk have been replaced by a pair of very powerful ones.

Fisher.—This is a small mine and working the same seam as the one last mentioned, but here the lower bench is much thinner and the upper bench is also very thin. They have worked fairly well during the year and have put in a new opening in a piece of coal lying to the left of the drift mouth, and have also sunk a shaft down to the coal. The ventilation was good on my first two visits, and on the other visits it was very fair.

Ocean No. 1.—This mine is worked only part of the year, as there was some difficulty in regard to price paid for yardage, and the number of miners is not very large. There are two seams worked from this opening, being connected inside by a tunnel through the rock. They have put down a shaft at the face of the workings, and the ventilation, which was poor on the first visit, was found to be good on the other ones. This is a very old mine, the coal is thin and the roads, on account of the very hard rock are low, and this hard

rock has to be blasted down in the rooms to allow the mules to bring the cars in and take them out.

Ocean No. 2.—This mine is working on the same vein as the Fisher and adjoins it and the two properties will be soon connected. The coal is of the same thickness and character and the method of working is heading and air course, with rooms turned off the heading and driven up 100 yards, and sometimes more. The mine is getting in a long distance, and the haul is very hard, owing to the steep hills. The general condition of the mine was very fair during the year.

Huntingdon.—This mine has worked like all the rest during the year; the vein is similar and the mode of working is the same as those described above. The condition of the mine was fair during the year.

Carbon.—This is a small mine; there were from twelve to fourteen men employed during the year and its condition was fair. This mine has much trouble with rolls, and they have been feeling their way along them as well as they could, hoping to find a gap in them at some point, and it seemed, on my last visit, that they had found one, and now they are in hopes of getting at better coal back of the roll.

Benedict.—They have worked very well at this mine during the year, and in the lower mine they have had considerable difficulty with rolls, and as the work became narrowed they put the miners into the upper seam, and are opening that, and mean to work from it in the future. The mine was in a fair condition during the year. These mines, Fisher, Ocean Nos. 1 and 2, Huntingdon, Carbon and Benedict are on the Shoup's Run branch of the Broad Top railroad.

Kearney.—Very little work was done at this mine during the spring and summer, as the furnace to which the coke is sent was out of blast for several months. In the Plane mine little work was done other than working out the rooms, and no headings had been driven. A connection has again been made with Cambria No. 1 mine and the mines are now working side by side. The ventilation was poor. In the slope, they have worked down far enough to get a lift to the right, and that side will now be worked, for the lift on the left has been worked out. The ventilation was very fair.

Cambria No. 1.—This was the only mine that the company worked during the year, and the ventilation and drainage were good. In the shaft mine, they only had men enough to mine coal for domestic use and for the use of the steam pumps.

Cumberland.—This mine has worked very well during the year, and they have devoted a great deal of attention to working out the coal in the bottom of the dip. On my last visit it was all cleaned and now it will allow them a large lodgement for water. In the headings and the rooms on the rise, they have had bad roof all the year, and this has made the mine very difficult to work, for, when bad

roof and a pitch as high as forty-five degrees are combined, it makes a very bad combination for the operator and the miner, and they have also much trouble by water coming from the roof, and so with bad roof, steep pitch and water, the work is very disagreeable all around. The ventilation on the whole was good, and they are trying to improve it by pushing an opening to the surface at the face of one of the pitch rooms, and when this is made it will bring the air current right to the face of the workings. They have the tail rope system of haulage and a Brazil fan is used for ventilation.

Crescent.—Work was very fair at this mine, and they have pushed forward the headings all they could. They still have trouble with a very steep pitch on the left of the main heading, but on my last visit it seemed to be getting more flat, while the pitch on the right kept more regular and the headings are kept regular. The mode of working is heading and air course, and the rooms are driven across the pitch for a distance of 100 yards. In the Chevington portion of the mine they are getting into a better roof and the coal is higher than before. The condition of the mine was good during the year.

Warner.—There was not much work done here during the year. They put down a shaft on the top of the hill, which has improved the ventilation very much. They have a great deal of trouble with rolls, making it difficult to keep the mine in good condition.

Cuba.—There are two openings here, but the upper one has not worked much, and most of the work has been at the lower one. The mine is connected with an old mine at North Point, and as the airway was kept up to the face of the work, it was in very good condition during the year. The method of work is heading and air course, and rooms are driven up nearly 100 yards, and the pillars are left in. The seam of coal at this mine will average three feet in thickness, with a good rock roof.

Eureka.—Very little work was done here, and a squeeze came on and compelled them to make a new road along the outcrops, to get at the coal lying beyond the squeeze. The Morrisdale Coal Company has leased the mine and will endeavor to make the changes needed.

New Hampshire.—A little work was done at this mine at the beginning of the year, and then the parties operating it got in litigation with the owners and they had to give up the lease, and now other parties are to work it the coming year.

Cunard.—Work was very good at this mine all the year, but the production was not large, owing to the difficulties they have to contend with in way of rolls, faults and water. They have driven down the slope, but the ground is very irregular and when they turn off a cross heading it is sure to run up against a roll, and then they have to start at another point. On the north side they have had rolls and faults nearly all the year, and now they have made a connection with

the Piper workings, and have drained the water out. The workings at the back end of the mine, on top of the plane, have been abandoned for the present, as it was found impossible to ventilate that portion of the mine, and they will endeavor to open out the coal in the slope and on the north side of the workings, so that this will be handy to the shaft. The ventilation was not very good, owing to the difficulties above stated, but efforts are being made to put the mine in good condition.

Harvey Slope.—This mine has worked very irregularly during the year. I visited it only once, and then its condition was very fair. This is a slope mine, and they have trouble with very steep pitches, making it a difficult mine to work; they also have trouble with water.

Delta.—I was in this mine once during the year, and the ventilation was so poor that I notified those operating it to put the mine in proper condition to comply with the law, but they reduced the number of miners so as not to come under the provisions of the law. A new party will take hold of it at the beginning of the year and will put it in proper condition.

Durham.—This mine has worked very steadily during the year, and they have endeavored to keep their men fully employed, and have not crowded the mine so that these men have done better than other men in this neighborhood. A great deal of new work has been done, and the heading have been pushed a great distance. The method of working is heading and air course, and the rooms are driven across the pitch for 100 yards. The pillars have been left standing and will not be worked until the mine is nearly exhausted. The ventilation and drainage were very good, and everything is well looked after, and no expense has been spared to put the mine in first class condition.

Blands.—This is not a large mine; the coal is used to supply the engines on the Pennsylvania and North Western railroad and the mine works nearly every day in the year. There are from thirty to forty men and boys employed and the vein will average four feet in thickness, with a very fair roof. The system is heading and air course and the rooms are driven up about seventy yards and the pillars are then pulled back. The ventilation and drainage were fair.

Fricks.—This mine is working on the same vein as the Bland mine, but the conditions are very different, for here there is stone running from nine to twelve inches in thickness in the middle of the coal, and the roof is very poor and needs careful watching on the part of the miners. The double heading system and rooms driven up seventy yards, and the pillar is then brought back, is followed here. The ventilation and the drainage were very good at my different visits.

Great Bend.—This mine is located a short distance from the Frick

mine and has the same characteristics as regards poor roof and thickness of stone in the middle of the seam. The same method of working is also followed. The ventilation was fair during the year.

Eldorado.—This mine was idle a portion of the year, as the lessees gave it up to the owner, who is now working it. The condition of the mine was very fair at the different visits during the year. They have struck a piece of poor coal in the main heading, and are now endeavoring to get beyond it, for there is a great part of the property yet unworked.

Edmiston.—This is a new mine, which was opened during the year for the purpose of supplying coal to the fire brick works, but they have not employed enough miners to come under the provisions of the law, but expect, in the coming year, to increase the force of miners.

Mountaindale.—The bulk of the coal from this mine is used for coking purposes, and the vein, which is a little over two feet in thickness is a very good coking coal. The method of working is heading and air course; the rooms are driven up seventy yards and the pillar is then brought back. The ventilation was fair during the year. This mine will soon be worked out, and a new one opened early the coming year.

Pennsylvania.—This is a new mine opened the last year, located about one mile from Coalport, and the vein will not average more than two and a half feet in thickness. The roof is not very good, it being so full of water seams that it is dangerous to work, and the miners have to exercise great care in keeping themselves safe. The plan is heading and air course, and rooms are driven up for a distance of seventy yards, and then the pillar is pulled back. The ventilation and drainage were good.

Oakland.—This is not a large mine, only about twenty miners being employed, and as the coal dips all the way into the hill they have trouble with water, and have a small steam pump outside to pump it out. The condition of the mine was very fair at my different visits. They have put in a new furnace during the year.

Irvona.—Work has been good at this mine during the year, for they are now in very good coal, and seem to be away from the faults that they have been troubled with for the last four years. They have made many improvements and the ventilation was good at the latter visits I made. The double heading system is followed here, and rooms are driven up 100 yards and the pillar is left until the mine is nearly worked out, as the workings are away below the level of the drift mouth, and the water that accumulates has to be pumped out with steam pumps. They have put a stationary engine on top of the slope to pull the cars up, and will shortly put on a locomotive to run from the tipple to the top of the slope. They have also put in a Stine fan and are now engaged in driving an airway in the high coal so as to

come out at a point near the fan, as the present airway is too contracted.

National.—This mine has worked very well during the year, as the bulk of the coal is used for making coke. The headings in this mine have all struck against a roll, and they are not going to cut it at the present time, but will work out the coal that is already open, and they have cut a long ditch which has drained a large body of coal that will last a long time. The ventilation, at the beginning of the year was good, but in the summer and latter part of the year it was only fair. They are now engaged in clearing up the old No. 1 mine, and, as this mine becomes worked out, they will transfer the miners to No. 1.

Penn.—The mine has worked fairly well during the year, and the ventilation and drainage were very good. The coal in the dip workings is nearly all worked out, and they are now working a piece of coal at the upper part of the property, which will not last very long. The method of working is heading and air course, and the rooms are driven up for 100 yards, and the pillars are then pulled out. This has been one of the best pieces of coal in the district, running from four to five and a half feet in thickness, and it has been very carefully worked.

Glenwood.—This property adjoins the Penn, and the coal is of the same character and thickness; the method of workings is also the same. A new opening has been made, and connections made with No. 4 opening, and now the coal on top of the hill in No. 4 is brought out at the new opening, which will allow the pulling out of the pillars in the old mine. The general condition of the mine was good during the year, and everything is well looked after by those in charge.

Urey.—There are three openings at this place, which are located in the next ridge to the Glenwood, and the coal and mode of working is the same. The mines have worked very well during the year, and a large quantity of coal was shipped from them. The ventilation and drainage were very good.

Burnside.—This is a small mine, which was opened during the year, on the line of the Pittsburgh and Eastern railroad, and very little work other than developing it has been done.

Dougherty.—This is a small mine, located at the terminus of the narrow gauge railroad running from Altoona to Dougherty, and the coal is all sold in Altoona for domestic purposes, so that during the summer months very little work is done and the busy season is during the fall and winter. Most of the work during the year was in the rooms and pillars, no heading work having been done. The condition of the mine was good.

Tunnel.—This is a small operation at Gorton Heights, on the Beech Creek railroad, and the work consists of taking the pillars out of one of the old Tunnel mines, and it is nearly worked out. The condition of the mine was very fair.

TABLE No. 1.—Showing Location, etc., of Collieries in the Tenth Bituminous District.

| Name of Colliery. | Name of Operator. | Location—County. | Name of Superintendent. | Postoffice Address. |
|---|---|---|---|---|
| Blands, | Fred Bland, | Cambria, | Fred Bland, | Blandsburg. |
| Bradley, | Bradley & Meagher, | Blair, | H. H. Bradley, | Gallitzen. |
| Bloomington Nos. 1, 2 & 3 | Bloomington Coal Company, | Clearfield, | Alex. Dunsmore, | Glen Richey. |
| Benedict, | W. W. Reed, | Huntingdon, | W. W. Reed, | Dudley. |
| Burnside, | Burnside Coal Company, | Clearfield, | John Boag, | Urey. |
| Cato, | Kelly & Nugent, | Centre, | Laurena Nugent, | Snow Shoe. |
| Carbon, | W. H. Sweet, | Huntingdon, | W. H. Sweet, | Dudley. |
| Cambria, | United Collieries Company, | Bedford, | James Denithorne, | Langdondale. |
| Careytown, | Lehigh Valley Coal Company, | Centre, | J. F. Marsteller, | Snow Shoe. |
| Cuba, | Whitehead Coal Mining Company, | Bedford, | Rody Maher, | Six Mile Run. |
| Cumberland, | Huntingdon and Broad Top R. R. Co., | Bedford, | John Langdon, | Hopewell. |
| Cunard, | Morrisdale Coal Company, | Bedford, | H. F. Chaney, | Six Mile Run. |
| Cherry Run, | W. F. Holt, | Centre, | W. F. Holt, | Philipsburg. |
| Crescent, | Crescent Coal Mining Company, | Bedford, | John Langdon, | Hopewell. |
| Delaney, | Altoona Coal and Coke Company, | Cambria, | John Munro, | Coupon. |
| Delta, | | | | |
| Douglas Slope, | Allen Somerville, | Clearfield, | Allen Somerville, | Winburne. |
| Dougherty, | Dougherty Coal Company, | Cambria, | J. H. Dougherty, | |
| Durham, | Kemble Iron Company, | Bedford, | William Lander, | Riddlesburg. |
| East End, | East End Coal Company, | Blair, | | |
| Eagle, | John Given & Son, | Cambria, | L. M. Givin, | Mountaindale. |
| Eldorado, | J. C. McCartney, | Cambria, | J. C. McCartney, | Mountaindale. |
| Edmiston, | Edmiston & Son, | Cambria, | | |
| Eureka, | | | | |
| Forest, | O. P. Jones & Co., | Clearfield, | John Horton, | Munson. |
| Fisher, | | | | |
| Fricks, | Max Frick, | Cambria, | Max Frick, | Loydsville. |
| Grass Flat, | Clearfield Bituminous Coal Corporation, | Clearfield, | R. A. Shillingford, | Peale. |
| Gazzam Nos. 1 & 2, | Clearfield Bituminous Coal Corporation, | Clearfield, | R. A. Shillingford, | Peale. |
| Glen White, | Glen White Coal and Lumber Company, | Blair, | Val Eichenlaub, | Glen White. |
| Great Bend, | Bellwood Coal Company, | Cambria, | W. S. Bell, | Bellwood. |
| Glenwood, | Glenwood Coal Company, | Indiana, | Arthur Riddle, | Glen Campbell. |
| Harvey Slope, | Harvey Coal Mining Company, | Bedford, | John McIntyre, | Six Mile Run. |
| Harts, | Thomas Hart, | Clearfield, | Joseph Hart, | Munson. |
| Horse Shoe, | Altoona Coal and Coke Company, | Cambria, | John Munro, | Coupon. |
| Huntingdon, | W. H. Sweet, | Huntingdon, | W. H. Sweet, | Dudley. |
| Hickes, | A. H. Hickes, | Huntingdon, | A. G. Hickes, | Coalmont. |
| Irvona, | Irvona Coal Company, | Clearfield, | Archie Bathgate, | Coalport. |
| Kearney, | Joseph Thropp, | Bedford, | T. A. Jones, | Kearney. |
| Kellys, | Kelly Bros., | Centre, | M. J. Kelly, | Snow Shoe. |
| Knox Run, | Clearfield Bituminous Coal Corporation, | Clearfield, | R. A. Shillingford, | Peale. |
| Kyler, | W. G. Fishburn, | Clearfield, | R. C. Fishburn, | Munson. |
| Lemon, | | | | |
| Mountaindale, | Bear Ridge, | | | |
| Moravian, | Clearfield Bituminous Coal Corporation, | Clearfield, | R. A. Shillingford, | Peale. |
| National, | Philadelphia Coal and Coke Company, | Clearfield, | W. W. Helman, | Irvona. |

| | | | | |
|---|---|---|---|---|
| New Hampshire, | Crescent Coal Mining Company, | Bedford, | John Langdon, | Hopewell. |
| O'Shanter, | Weaver & Ettla, | Clearfield, | H. C. Dick, | O'Shanter. |
| Oakland, | S. Hegarty's Sons, | Clearfield, | W. W. Hegarty, | Coalport. |
| Ocean Nos. 1 and 2, | W. H. Sweet, | Huntingdon, | W. H. Sweet, | Dudley. |
| Penn, | Reakirt Bros. & Co., | Indiana, | W. J. Trevesick, | Glen Campbell. |
| Pennsylvania, | Thomas Barnes, | Clearfield, | John T. Slinger, | Philipsburg. |
| Porter Shaft, | C. H. Porter & Co., | Blair, | C. H. Porter, | Hollidaysburg. |
| Pleasant Hill, | Clearfield Bituminous Coal Corporation, | Clearfield, | R. A. Shillingford, | Peale. |
| Royal Slope, | O. P. Jones & Co., | Clearfield, | John Morris, | Munson. |
| Robertsdale, | Rockhill Iron Company, | Huntingdon, | F. F. Lyon, | Robertsdale. |
| Somerville, | Somerville & Buchannan, | Clearfield, | John Somerville, | Winburne. |
| Sugar Camp, | Lehigh Valley Coal Company, | Centre, | J. F. Marsteller, | Snow Shoe. |
| Tunnel, | Hain & Quirk, | Centre, | Edward Quirk, | Gorton Heights. |
| Urey Nos. 1, 2 and 3, | Urey Ridge Coal Company, | Indiana, | Thomas Bellis, | Urey. |
| Warner, | Lambirth Coal Mining Company, | Bedford, | G. McIntyre, | Six Mile Run. |
| Woodvale Shaft, | Rockhill Iron Company, | Huntingdon, | F. F. Lyon, | Robertsdale. |

TABLE No. 2.—Gives the total number of tons of coal mined and tons of coke produced in each Colliery, number of days worked, number of employes, number of persons killed and injured, number of kegs of powder used, etc., in the Tenth Bituminous District, for the year ending December 31, 1897.

| Names of Collieries. | Location—County. | Total production in tons of coal. | Total production in tons of coke. | Quantity of coal in tons used for steam and heat. | Sold to local trade and used by employes. | Railroad shipments in tons of coal. | Number of days worked. | Number of persons employed. | Number of fatal accidents. | Number of non-fatal accidents. | Number of kegs powder used. | Number of pounds dynamite used. | Number of steam boilers. | Number of horses and mules. | Number of mine locomotives. | Number of coke ovens. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blands, | Cambria, | 25,311 | ..... | ..... | 251 | 25,060 | 300 | 38 | ..... | ..... | 240 | ..... | ..... | 3 | ..... | ..... |
| Bradley, | Blair, | 35,704 | ..... | ..... | 300 | 35,404 | 180 | 50 | ..... | ..... | 10 | ..... | ..... | 11 | ..... | ..... |
| Bloomington No. 1, | Clearfield, | 108,300 | ..... | ..... | 400 | 107,900 | 250 | 142 | ..... | ..... | 740 | ..... | ..... | 12 | ..... | ..... |
| Bloomington No. 2, | Clearfield, | 135,200 | ..... | 500 | 100 | 134,620 | 250 | 230 | 1 | ..... | 1,090 | ..... | ..... | 13 | ..... | ..... |
| Benedict, | Huntingdon, | 23,000 | ..... | ..... | ..... | 23,000 | 200 | 36 | ..... | ..... | 100 | 300 | ..... | 4 | ..... | ..... |
| Burnside, | Clearfield, | 7,817 | ..... | ..... | 300 | 7,517 | 75 | 28 | ..... | ..... | 108 | ..... | ..... | 2 | ..... | ..... |
| Cato, | Centre, | 4,000 | ..... | ..... | 100 | 3,900 | 125 | 12 | ..... | ..... | 25 | 100 | ..... | 2 | ..... | ..... |
| Carbon, | Huntingdon, | 8,000 | ..... | ..... | 225 | 7,775 | 205 | 20 | ..... | ..... | 60 | 290 | ..... | 2 | ..... | ..... |
| Cambria No. 1, | Bedford, | 10,590 | ..... | ..... | ..... | 10,590 | 105 | 56 | ..... | ..... | ..... | 100 | ..... | 8 | ..... | ..... |
| Cambria No. 2, | Bedford, | 800 | ..... | 700 | 100 | ..... | ..... | 5 | ..... | ..... | ..... | ..... | 3 | 10 | ..... | ..... |
| Careytown, | Centre, | 33,131 | ..... | 47 | ..... | 33,084 | 253 | 33 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| Cuba, | Bedford, | 17,736 | ..... | ..... | ..... | 17,736 | 158 | 62 | ..... | ..... | 35 | ..... | ..... | 5 | ..... | ..... |
| Cumberland, | Bedford, | 50,682 | ..... | 300 | 150 | 50,232 | 182 | 104 | ..... | ..... | 70 | ..... | 2 | 10 | ..... | ..... |
| Cunard, | Bedford, | 49,224 | ..... | 1,389 | 369 | 47,466 | 169 | 84 | ..... | ..... | 300 | 200 | 3 | 10 | ..... | 18 |
| Cherry Run, | Centre, | 49,000 | ..... | ..... | 150 | 48,850 | 217 | 95 | ..... | ..... | 600 | ..... | ..... | 7 | ..... | ..... |
| Crescent, | Bedford, | 89,726 | ..... | 350 | 400 | 88,976 | 189 | 160 | ..... | ..... | 217 | ..... | 2 | 14 | ..... | ..... |
| Delaney, | Cambria, | 177,735 | 12,394 | 620 | 1,025 | 153,000 | 247 | 266 | ..... | 3 | 1,160 | ..... | 2 | 15 | ..... | ..... |
| Delta, | Bedford, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Douglas Slope, | Clearfield, | 10,250 | ..... | 200 | 48 | 10,002 | 84 | 38 | ..... | ..... | 125 | 175 | 1 | 2 | ..... | ..... |
| Dougherty, | Cambria, | 7,892 | ..... | ..... | 218 | 7,674 | 154 | 16 | ..... | 1 | 67 | ..... | ..... | 2 | ..... | ..... |
| Durham, | Bedford, | 63,019 | ..... | 526 | 1,339 | 61,154 | 300 | 92 | ..... | ..... | 22 | 37 | 1 | 5 | ..... | ..... |
| East End, | Blair, | 81,703 | ..... | 1,882 | ..... | 79,821 | 188 | 118 | ..... | 1 | 450 | ..... | 2 | 9 | ..... | 50 |
| Eagle, | Cambria, | 1,000 | ..... | ..... | ..... | 1,000 | 150 | 3 | ..... | ..... | 15 | ..... | ..... | 1 | ..... | ..... |
| Eldorado, | Cambria, | 10,000 | ..... | 50 | 75 | 9,825 | 240 | 34 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... |
| Edmiston, | Cambria, | 3,000 | ..... | ..... | 3,000 | ..... | 120 | 9 | ..... | ..... | 80 | ..... | ..... | 1 | ..... | ..... |
| Eureka, | Bedford, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Forest, | Clearfield, | 73,369 | ..... | ..... | 460 | 72,909 | 154 | 115 | ..... | ..... | 440 | ..... | ..... | 15 | ..... | ..... |
| Fisher, | Huntingdon, | 8,816 | ..... | ..... | 48 | 8,768 | 125 | 22 | ..... | ..... | 200 | ..... | ..... | 4 | ..... | ..... |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fricks, | Cambria, | 39,000 | ..... | 60 | 300 | 38,733 | 285 | 48 | ..... | ..... | 360 | 50 | ..... | 3 | ..... | 100 |
| Grass Flat, | Clearfield, | 157,988 | 45,278 | 940 | ..... | 87,387 | 292 | 201 | ..... | ..... | 1,200 | ..... | 2 | 7 | ..... | ..... |
| Gazzam No. 1, | Clearfield, | 84,229 | ..... | 232 | 789 | 83,208 | 238 | 169 | ..... | ..... | 838 | 150 | 2 | 14 | 1 | ..... |
| Gazzam No. 2, | Clearfield, | 15,317 | ..... | ..... | ..... | 15,317 | 109 | 51 | ..... | ..... | 132 | ..... | ..... | 3 | ..... | ..... |
| Glen White, | Blair, | 75,424 | 23,760 | 1,920 | 430 | 38,120 | 241 | 162 | 1 | ..... | 530 | ..... | 4 | 10 | 1 | 97 |
| Great Bend, | Cambria, | 20,000 | ..... | ..... | ..... | 20,000 | 260 | 40 | ..... | ..... | 250 | ..... | ..... | 3 | ..... | ..... |
| Glenwood, | Indiana, | 142,246 | ..... | ..... | 1,002 | 141,244 | 170 | 160 | 1 | 1 | 831 | ..... | ..... | 23 | ..... | ..... |
| Harvey Slope, | Bedford, | 31,897 | ..... | 563 | ..... | 31,334 | 175 | 90 | ..... | ..... | ..... | ..... | 1 | 5 | ..... | ..... |
| Harts, | Clearfield, | 5,425 | ..... | ..... | 512 | 4,913 | 80 | 29 | ..... | ..... | 75 | 3 | ..... | 2 | ..... | ..... |
| Horse Shoe, | Blair, | 29,546 | 13,144 | ..... | ..... | 9,830 | 266 | 40 | ..... | 1 | ..... | 600 | ..... | 3 | ..... | 73 |
| Huntingdon, | Huntingdon, | 21,261 | ..... | ..... | 340 | 20,821 | 195 | 36 | ..... | ..... | 120 | 530 | ..... | 4 | ..... | ..... |
| Hickes, | Huntingdon, | 3,700 | ..... | ..... | 160 | 3,600 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| Irvona, | Clearfield, | 80,000 | 35,000 | 500 | 500 | 27,000 | 300 | 123 | ..... | 1 | 500 | ..... | 4 | 13 | ..... | 80 |
| Kearney, | Bedford, | 36,491 | 22,660 | 205 | 350 | 1,960 | 128 | 118 | 1 | 1 | 140 | ..... | 2 | 16 | ..... | 151 |
| Kellys, | Centre, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Knox Run, | Clearfield, | 122,315 | ..... | ..... | 175 | 122,140 | 262 | 173 | ..... | ..... | 700 | ..... | ..... | 6 | ..... | ..... |
| Kyler, | Clearfield, | 48,535 | ..... | 40 | 312 | 48,183 | 210 | 77 | ..... | 1 | 541 | ..... | 1 | 9 | ..... | 50 |
| Lemon, | Blair, | 93,639 | ..... | ..... | 1,356 | 92,283 | 251 | 106 | ..... | ..... | 500 | ..... | ..... | 20 | ..... | 100 |
| Mountaindale, | Cambria, | 21,227 | 10,521 | 276 | 288 | 3,653 | 260 | 54 | ..... | ..... | 60 | 50 | 1 | 3 | ..... | 50 |
| Moravian, | Clearfield, | 99,285 | ..... | ..... | 1,048 | 98,237 | 267 | 154 | ..... | ..... | 800 | ..... | ..... | 10 | ..... | ..... |
| National, | Clearfield, | 50,702 | 29,125 | 200 | 250 | 12,478 | 262 | 75 | ..... | ..... | 360 | ..... | ..... | 6 | ..... | 100 |
| New Hampshire, | Bedford, | 3,319 | ..... | ..... | ..... | 3,319 | ..... | 32 | ..... | ..... | ..... | ..... | ..... | 3 | ..... | ..... |
| O'Shanter, | Clearfield, | 50,000 | ..... | ..... | 500 | 49,500 | 276 | 50 | ..... | ..... | 360 | ..... | ..... | 8 | ..... | ..... |
| Oakland, | Clearfield, | 11,386 | ..... | 50 | 200 | 11,136 | 245 | 19 | ..... | ..... | 98 | ..... | 1 | 3 | ..... | ..... |
| Ocean No. 1, | Huntingdon, | 16,441 | ..... | ..... | 280 | 16,161 | 210 | 31 | ..... | ..... | 95 | 400 | ..... | 3 | ..... | ..... |
| Ocean No. 2, | Huntingdon, | 27,653 | ..... | ..... | 190 | 27,463 | 215 | 45 | ..... | 1 | 135 | 580 | ..... | 3 | ..... | ..... |
| Penn, | Indiana, | 45,488 | ..... | ..... | ..... | 45,488 | 119 | 63 | ..... | ..... | 311 | ..... | ..... | 11 | ..... | ..... |
| Pennsylvania, | Clearfield, | 11,757 | ..... | ..... | 25 | 11,732 | 157 | 60 | ..... | ..... | 250 | ..... | ..... | 3 | ..... | ..... |
| Porter Shaft, | Blair, | 1,519 | ..... | 21 | ..... | 1,498 | 30 | 40 | ..... | ..... | 1 | ..... | 2 | 7 | ..... | ..... |
| Pleasant Hill, | Clearfield, | 114,413 | ..... | ..... | 660 | 113,753 | 261 | 159 | ..... | ..... | 1,200 | ..... | ..... | 8 | ..... | ..... |
| Royal Slope, | Clearfield, | 60,546 | ..... | 350 | ..... | 60,195 | 192 | 133 | ..... | ..... | 360 | ..... | 2 | 8 | ..... | ..... |
| Robertsdale, | Huntingdon, | 108,713 | ..... | 5,519 | 2,832 | 100,362 | 138 | 221 | ..... | 1 | 1,400 | 3,500 | 11 | 34 | ..... | ..... |
| Somerville, | Clearfield, | 106,398 | ..... | 267 | 731 | 105,400 | 206 | 150 | ..... | 2 | ..... | ..... | 1 | 16 | ..... | ..... |
| Sugar Camp No. 1, | Centre, | 163,898 | ..... | 236 | 813 | 162,848 | 214 | 238 | 1 | ..... | 63 | 3,525 | ..... | 18 | 1 | ..... |
| Sugar Camp No. 2, | Centre, | 53,512 | ..... | 78 | 266 | 53,167 | 182 | 73 | 1 | ..... | ..... | ..... | 1 | 9 | ..... | 200 |
| Tunnel, | Centre, | 19,920 | ..... | ..... | 30 | 19,890 | 229 | 30 | 1 | ..... | 130 | 55 | ..... | 6 | ..... | ..... |
| Urey No. 1, | Indiana, | 37,150 | ..... | ..... | 50 | 37,100 | 161 | 51 | ..... | ..... | 350 | ..... | ..... | 7 | ..... | ..... |
| Urey No. 2, | Indiana, | 55,524 | ..... | ..... | ..... | 55,524 | 178 | 62 | ..... | ..... | 476 | ..... | ..... | 4 | ..... | ..... |
| Urey No. 3, | Indiana, | 25,873 | ..... | ..... | 30 | 25,843 | 141 | 32 | ..... | ..... | 131 | ..... | ..... | 1 | ..... | ..... |
| Warner, | Bedford, | 17,032 | ..... | ..... | ..... | 17,032 | ..... | 48 | ..... | ..... | ..... | ..... | ..... | 4 | ..... | ..... |
| Woodvale Shaft, | Huntingdon, | 68,092 | ..... | 2,805 | 120 | 65,167 | 137 | 182 | ..... | 4 | 840 | 2,100 | 8 | 19 | ..... | ..... |
| Total, | | 3,261,976 | 191,882 | 20,826 | 23,537 | 2,929,282 | 12,162 | 5,493 | 7 | 18 | 20,171 | 12,545 | 59 | 507 | 3 | 1,069 |

TABLE No. 3—Showing the number of each class of Employes at ea ch Colliery in the Tenth Bituminous District, during the year 1897.

| Names of Collieries. | Occupations of Persons Employed Inside. | | | | | | | Occupations of Persons Employed Outside. | | | | | | | Grand total, inside and outside. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inside foreman or mine boss. | Miners. | Miners' laborers. | Drivers and runners. | Door boys and helpers. | All other company men. | Total inside. | Outside foremen. | Blacksmiths and carpenters. | Engineers and firemen. | Slate pickers. | All other company men. | Superintendents, bookkeepers and clerks. | Total outside. | |
| Blands, | 1 | 30 | ..... | 3 | 1 | ..... | 35 | ..... | ..... | ..... | ..... | 3 | ..... | 3 | 38 |
| Bradley, | 1 | 40 | ..... | 6 | ..... | ..... | 47 | ..... | 1 | ..... | ..... | 1 | 1 | 3 | 50 |
| Bloomington No. 1, | 1 | 125 | ..... | 5 | 3 | 2 | 136 | ..... | 1 | ..... | ..... | 4 | 1 | 6 | 142 |
| Bloomington No. 2, | 1 | 200 | ..... | 9 | 3 | 6 | 219 | ..... | 2 | 2 | ..... | 6 | 1 | 11 | 230 |
| Benedict, | 1 | 30 | ..... | 1 | ..... | ..... | 32 | ..... | 1 | ..... | ..... | 2 | 1 | 4 | 36 |
| Burnside, | 1 | 25 | ..... | 1 | ..... | ..... | 27 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 28 |
| Cato, | 1 | 9 | 1 | 1 | ..... | ..... | 12 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 12 |
| Carbon, | 1 | 15 | ..... | 2 | ..... | 1 | 19 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 20 |
| Cambria No. 1, | 1 | 38 | 2 | 7 | 2 | 1 | 51 | ..... | 1 | 1 | 1 | ..... | 2 | 5 | 56 |
| Cambria No. 2, | ..... | 5 | ..... | ..... | ..... | ..... | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 |
| Careytown, | 1 | 32 | ..... | ..... | ..... | ..... | 33 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 33 |
| Cuba, | 1 | 46 | 2 | 3 | 1 | 3 | 56 | ..... | 2 | ..... | ..... | 2 | 2 | 6 | 62 |
| Cumberland, | 1 | 80 | ..... | 7 | 4 | 3 | 95 | ..... | 1 | 2 | 1 | 4 | 1 | 9 | 104 |
| Cunard, | 1 | 60 | ..... | 5 | ..... | 5 | 71 | ..... | 2 | 3 | 1 | 5 | 2 | 13 | 84 |
| Cherry Run, | 1 | 85 | ..... | 4 | ..... | 2 | 92 | 1 | 1 | ..... | ..... | ..... | 1 | 3 | 95 |
| Crescent, | 1 | 127 | ..... | 13 | 4 | 3 | 148 | ..... | 3 | 2 | 1 | 6 | 1 | 12 | 160 |
| Delaney, | 1 | 224 | 5 | 14 | 7 | ..... | 251 | ..... | 2 | 2 | 1 | 10 | ..... | 15 | 266 |
| Delta, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Douglas Slope, | 1 | 31 | ..... | 1 | 1 | ..... | 34 | ..... | 1 | 1 | ..... | 1 | 1 | 4 | 38 |
| Dougherty, | 1 | 13 | ..... | 1 | ..... | ..... | 15 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 16 |
| Durham, | 1 | 74 | ..... | 4 | 2 | 2 | 83 | ..... | 2 | 1 | 2 | 2 | 2 | 9 | 92 |
| East End, | 1 | 98 | ..... | 7 | 1 | 2 | 109 | ..... | 1 | 2 | ..... | 4 | 2 | 9 | 118 |
| Eagle, | ..... | 3 | ..... | ..... | ..... | ..... | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| Eldorado, | 1 | 28 | ..... | 1 | ..... | 1 | 31 | 1 | ..... | ..... | ..... | ..... | 2 | 3 | 34 |
| Edmiston, | ..... | 8 | ..... | 1 | ..... | ..... | 9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| Eureka, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Forest, | 1 | 76 | 21 | 5 | ..... | 1 | 104 | 1 | 1 | 2 | ..... | 5 | 2 | 11 | 115 |
| Fisher, | 1 | 19 | ..... | 2 | ..... | ..... | 22 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 22 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fricks, | 1 | 40 | ..... | 3 | ..... | 1 | 45 | ..... | 1 | ..... | 1 | ..... | 1 | 3 | 48 |
| Grass Flat, | 1 | 173 | ..... | 1 | ..... | 6 | 187 | ..... | 1 | 2 | 5 | 6 | ..... | 14 | 201 |
| Gazzam No. 1, | 1 | 125 | 6 | 7 | 6 | 4 | 149 | ..... | 3 | 3 | ..... | 12 | 2 | 20 | 169 |
| Gazzam No. 2, | 1 | 44 | 1 | 3 | ..... | 1 | 50 | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 51 |
| Glen White, | 1 | 132 | 2 | 7 | 3 | ..... | 145 | 1 | 1 | 3 | 2 | 8 | 2 | 17 | 162 |
| Great Bend, | 1 | 28 | ..... | 3 | 2 | 2 | 36 | ..... | 1 | ..... | 1 | 1 | 1 | 4 | 40 |
| Glenwood, | 1 | 140 | ..... | 7 | 3 | 2 | 153 | ..... | 2 | ..... | ..... | 3 | 2 | 7 | 160 |
| Harvey Slope, | 1 | 75 | 1 | 6 | 2 | 1 | 86 | ..... | 1 | 1 | ..... | 1 | 1 | 4 | 90 |
| Harts, | 1 | 25 | ..... | 2 | ..... | ..... | 28 | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 29 |
| Horse Shoe, | 1 | 30 | 1 | 3 | 2 | ..... | 37 | ..... | 1 | ..... | ..... | 2 | ..... | 3 | 40 |
| Huntingdon, | 1 | 30 | 2 | 2 | ..... | 1 | 36 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 36 |
| Hickes, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Irvona, | 1 | 74 | ..... | 9 | 2 | 3 | 89 | 1 | 2 | 3 | 2 | 25 | 1 | 34 | 123 |
| Kearney, | 1 | 91 | 2 | 11 | ..... | 1 | 106 | 1 | 1 | 2 | ..... | 6 | 2 | 12 | 118 |
| Kelleys, | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Knox Run, | 1 | 156 | ..... | 6 | 2 | 2 | 167 | ..... | 1 | ..... | 4 | 1 | ..... | 6 | 173 |
| Kyler, | 1 | 63 | ..... | 3 | 2 | 2 | 71 | ..... | 1 | ..... | ..... | 4 | 1 | 6 | 77 |
| Lemon, | 1 | 87 | 7 | ..... | ..... | 4 | 99 | ..... | 1 | ..... | ..... | 4 | 2 | 7 | 106 |
| Mountaindale, | 1 | 36 | ..... | 2 | ..... | ..... | 39 | ..... | 1 | 1 | ..... | 12 | 1 | 15 | 54 |
| Moravian, | 1 | 131 | ..... | 9 | 5 | 2 | 148 | ..... | 1 | ..... | 4 | 1 | ..... | 6 | 154 |
| National, | 1 | 59 | 1 | 6 | 1 | ..... | 68 | 1 | 1 | ..... | ..... | 4 | 1 | 7 | 75 |
| New Hampshire, | 1 | 26 | 1 | 2 | ..... | 1 | 31 | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 32 |
| O'Shanter, | 1 | 39 | 6 | 2 | ..... | ..... | 48 | ..... | 1 | ..... | ..... | 1 | ..... | 2 | 50 |
| Oakland, | 1 | 12 | 2 | 1 | ..... | 1 | 17 | ..... | ..... | 1 | ..... | ..... | 1 | 2 | 19 |
| Ocean No. 1, | 1 | 25 | ..... | 2 | ..... | ..... | 28 | ..... | 1 | ..... | ..... | 1 | 1 | 3 | 31 |
| Ocean No. 2, | 1 | 37 | ..... | 3 | 1 | 1 | 43 | ..... | 1 | ..... | ..... | 1 | ..... | 2 | 45 |
| Penn, | 1 | 52 | ..... | 7 | ..... | ..... | 60 | 1 | 1 | ..... | ..... | ..... | 1 | 3 | 63 |
| Pennsylvania, | 1 | 50 | ..... | 2 | 1 | 1 | 55 | 1 | 1 | ..... | 1 | 1 | 1 | 5 | 60 |
| Porter Shaft, | 1 | 22 | 4 | 4 | 2 | 4 | 37 | 1 | 1 | 1 | ..... | ..... | ..... | 3 | 40 |
| Pleasant Hill, | 1 | 140 | ..... | 8 | 3 | 1 | 153 | ..... | 1 | ..... | 4 | 1 | ..... | 6 | 159 |
| Royal Slope, | 1 | 94 | 20 | 4 | 1 | 4 | 124 | 1 | 1 | 2 | 2 | 2 | 1 | 9 | 133 |
| Robertsdale, | 1 | 167 | 7 | 19 | 3 | 10 | 207 | 1 | 3 | 3 | 1 | 2 | 4 | 14 | 221 |
| Somerville, | 1 | 129 | ..... | 8 | 1 | 2 | 141 | ..... | 1 | 1 | 1 | 4 | 2 | 9 | 150 |
| Sugar Camp No. 1, | 1 | 198 | ..... | 6 | 2 | 20 | 228 | ..... | 2 | 2 | ..... | 4 | 2 | 10 | 238 |
| Sugar Camp No. 2, | 1 | 62 | ..... | 3 | 1 | 1 | 68 | ..... | 1 | ..... | ..... | 3 | 1 | 5 | 73 |
| Tunnel, | 1 | 25 | ..... | 2 | ..... | ..... | 28 | ..... | ..... | ..... | ..... | 1 | 1 | 2 | 30 |
| Urey No. 1, | 1 | 40 | ..... | 2 | 1 | 1 | 45 | ..... | 1 | ..... | ..... | 3 | 2 | 6 | 51 |
| Urey No. 2, | 1 | 55 | ..... | 3 | ..... | 1 | 60 | ..... | 1 | ..... | ..... | ..... | 1 | 2 | 62 |
| Urey No. 3, | 1 | 27 | ..... | 1 | 1 | 1 | 31 | ..... | ..... | ..... | ..... | 1 | ..... | 1 | 32 |
| Warner, | 1 | 39 | ..... | 4 | ..... | ..... | 44 | 1 | 1 | ..... | ..... | ..... | 2 | 4 | 48 |
| Woodvale, | 1 | 132 | 6 | 11 | 3 | 9 | 162 | 1 | 3 | 3 | 1 | 8 | 4 | 20 | 182 |
| Total, | 62 | 4,430 | 100 | 293 | 79 | 124 | 5,088 | 14 | 62 | 46 | 36 | 161 | 66 | 405 | 5,493 |

TABLE No. 4—List of Fatal Accidents that occurred in and ab out the Mines of the Tenth Bituminous District, for the year ending Dece mber 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | No. of orphans. | Name of Colliery. | Location—County. | Nature and cause of Accident in Brief. |
|---|---|---|---|---|---|---|---|---|
| Jan. 12, | Joe Vallick, ..... | Miner, ..... | .... | .... | .... | Sugar Camp, ..... | Centre, ..... | Killed by a fall of slate in his room. |
| Mar. 10, | Paul Mock, ..... | Miner, ..... | 47 | S. | .... | Tunnel, ..... | Centre, ..... | Killed by a fall of draw slate. |
| 11, | Albert Rappy, ..... | Miner, ..... | 22 | S. | .... | Glen White, ..... | Blair, ..... | A piece of slate fell upon him instantly killing him. |
| Aug. 5, | Gust Nelson, ..... | Miner, ..... | 28 | S. | .... | Bloomington, ..... | Clearfield, ..... | Went back to see how a shot had worked and must have been examining it, when a stone fell from the roof of the heading upon him, killing him. |
| Sept. 8, | Peter Bearsick, ..... | Miner, ..... | .... | .... | .... | Sugar Camp, ..... | Centre, ..... | A piece of rock fell and struck him on the head, killing him instantly. |
| 10, | Martin O'Hara, ..... | Miner, ..... | 28 | M. | 2 | Glenwood, ..... | Indiana, ..... | A piece of slate about 12 feet in length fell upon him, killing him. |
| Nov. 1, | John Saltorskey, ..... | Coker, ..... | 20 | S. | .... | Kearney, ..... | Bedford, ..... | This man was the larry runner at the coke ovens and after filling his larry at the bin, started with it, and in jumping on it was caught between the larry and a post and was so severely squeezed that he died. |

TABLE No. 5—List of Non-Fatal Accidents that occurred in and about the Mines of the Tenth Bituminous District, for the year ending December 31, 1897.

| Date of accident. | Name of Person. | Occupation. | Age. | Married or single. | Name of Colliery. | Location—County. | Nature and Cause of Accident. |
|---|---|---|---|---|---|---|---|
| Jan. 4, | Felici Olgeath, | Miner, | 45 | M. | Delaney, | Cambria, | Rib broken by a fall of coal. |
| Feb. 24, | E. Hale, | Miner, | .... | .... | Dougherty, | Cambria, | Injured by fall of roof. |
| Mar. 24, | William Hanes, | Driver, | 21 | S. | Kyler, | Clearfield, | Foot badly bruised; run over by cars. |
| 27, | Zach Waite, | Miner, | 45 | M. | Woodvale, | Huntingdon, | Two ribs broken by a fall of coal. |
| April 5, | James McCabe, | Miner, | 35 | .... | East End, | Blair, | Injured internally by fall of coal. |
| 30, | Robert Hunt, | Miner, | 40 | M. | Woodvale, | Huntingdon, | Hand crushed by a fall of coal. |
| May 17, | Thomas Langford, | Miner, | 54 | M. | Delaney, | Cambria, | Foot smashed by a fall of coal. |
| June 24, | Joseph Weaver, | Miner, | 25 | M. | Horse Shoe, | Blair, | Leg broken by a fall of rock. |
| July 7, | E. E. Shingler, | Miner, | 30 | M. | Woodvale, | Huntingdon, | Leg broken by a fall of coal. |
| Aug. 13, | Arthur Smith, | Driver, | .... | .... | Irvona, | Clearfield, | Cut above the eye and three ribs fractured by a fall of stone from the roof. |
| 26, | Job Percival, | Miner, | 32 | M. | Delaney, | Cambria, | Squeezed across the hips between loaded car and the rib. |
| Sept. 10, | Harvey O'Hara, | Miner, | 26 | M. | Glenwood, | Indiana, | Badly injured by fall of slate. |
| 20, | Zack Harnish, | Miner, | 46 | M. | Woodvale, | Huntingdon, | Thumb mashed by a fall of coal. |
| 28, | William Jones, | Miner, | 32 | S. | Robertsdale, | Huntingdon, | Legs badly injured by a fall of coal. |
| Nov. 2, | William Griffin, | Miner, | 40 | M. | Ocean No. 2, | Huntingdon, | Injured by a fall of rock. |
| 6, | Lewis Dahlquist, | Miner, | 42 | M. | Somerville, | Clearfield, | Collar bone broken by having been squeezed between cars and the rib. |
| 22, | Maline Thomas, | Miner, | 21 | S. | Kearney, | Bedford, | Slightly injured by a fall of slate. |
| Dec. 13, | John Woodzell, | Miner, | 19 | S. | Somerville, | Clearfield, | Leg broken by a fall of rock. |

# INDEX.


| | Page. |
|---|---|
| Communication to the Governor, | i |
| Letter of transmittal, | ii |
| Table of contents, | v |
| Introduction to report, Bureau of Mines, | vii |
| Fatal accidents per 1,000 employes and tons of coal mined per fatal accident in and about anthracite mines from 1870 to 1897 inclusive, | viii |
| Fatal accidents per 1,000 employes in and about bituminous mines and tons mined per fatal accident from 1878 to 1897 inclusive, | ix |
| Result of prosecutions for violations of the mining acts in Scotland for 1896, | xi |
| Results of prosecutions of mine owners and managers for offenses under the mine acts in that country for same period, | xii |
| Results of prosecutions for violations of the mine laws of Pennsylvania in 1897, | xiii |
| Number of employes in 150 anthracite mines; number native born, aliens and naturalized citizens, | xiv |
| Number of employes in 400 bituminous mines; number native born, aliens and naturalized citizens, | xiv |
| Causes of strikes in 54 mines, loss to employers, and loss of wages to employes, | xv |
| Production of fire clay and shale from coal mines, | xv |
| Deductions from Mine Inspectors' reports, | xvi |
| Table showing production, shipments, etc., in 1897, compared with those of 1896, in anthracite collieries, | xxii |
| Table showing production, shipments, etc., in 1897, compared with those of 1896, in bituminous collieries, | xxiv |
| Table showing causes of accidents and number attributable to each cause in anthracite collieries during 1897, | xxvi |
| Table showing causes of accidents and number attributable to each cause in bituminous collieries during 1897, | xxviii |
| Table showing production of coal and coke in tons, number of employes, number of accidents, etc., | xxx |
| Production of anthracite coal and number of employes in and about the mines by counties, | xxxii |
| Production of bituminous coal and coke and number of employes in and about the mines by counties, | xxxiv |
| Method and cost of flushing culm into anthracite mines, | xxxv |
| Laws relating to coal mining, | liv |
| An act to protect miners in the bituminous coal region of the Commonwealth, approved June 1, 1883, | lv |
| An act to provide payment to the miner for all clean coal mined by him, | lvii |




33—10—97

Page.

An act to provide for the recovery of the bodies of workmen enclosed, buried or entombed in coal mines, approved May 9, 1889, ..... lvii

An act to provide for the examination of miners in the Anthracite region of this Commonwealth, and to prevent the employment of incompetent persons as miners in anthracite coal mines, approved May 9, 1889, ..... lviii

An act to provide for the health and safety of persons employed in and about the anthracite coal mines of Pennsylvania and for the protection and preservation of property connected therewith, approved June 2, 1891, cx

An act relating to bituminous coal mines and providing for the health, safety and welfare of persons employed therein, approved May 15, 1893, cxii

An act equalizing and fixing the compensation and mileage of the members of the several examining boards, etc., etc., approved June 26, 1895, cxxxviii

An act for the better protection of employes in and about the coal mines by preventing mine superintendents, mine foremen or assistants from receiving any sums of money or other valuable consideration from men while in their employ, and providing a penalty for violation of the same, approved June 15, 1897, ..... cxxix

An act establishing a Bureau of Mines in the Department of Internal Affairs of Pennsylvania, defining its purposes and authority, providing for the chief of said Bureau and assistants and fixing their salary and expenses, approved July 15, 1897, ..... cxxx

An act requiring the weighing of all bituminous coal before screening, and providing a penalty for the violation thereof, approved July 15, 1897, cxxxiv

An act to protect the lives and limbs of miners from the dangers resulting from incompetent miners working in the anthracite mines of this Commonwealth, etc., etc., approved July 15, 1897, ..... cxxxv

FIRST ANTHRACITE DISTRICT:

Letter of transmittal, ..... 1

Table "A," showing production of coal and number of employes for each company, ..... 2

Table "B," showing number of fatal accidents and number of tons of coal produced per life lost, ..... 2

Table "C," number of fatal and non-fatal accidents and tons of coal produced per accident, ..... 3

Table "D," occupations of persons killed or injured, ..... 3

Table "E," classification of accidents, ..... 4

Table "F," nationality of persons killed and injured, ..... 4

Remarks on fatal accidents, ..... 4

Mine foremen's examinations, ..... 6

Table No. 1, showing location, etc., of collieries, ..... 8

Table No. 2, gives number of tons of coal mined, number of days worked, etc., in each colliery, ..... 9

Table No. 3, number of each class of employes, ..... 13

Table No. 4, list of fatal accidents, ..... 17

Table No. 5, list of non-fatal accidents, ..... 20

SECOND ANTHRACITE DISTRICT:

Letter of transmittal, ..... 25

Table "A," showing production of coal by each company, number of employes, etc., ..... 26

Table B, number of fatal accidents and quantity of coal produced for each fatality, ..... 26

Page.

Table C, number of fatal and non-fatal accidents and tons of coal produced per accident, ..... 27
Table D, classification of accidents, ..... 27
Table E, occupations of persons killed and injured, ..... 28
Table F, nationality of persons killed and injured, ..... 28
Other fatalities, ..... 28
Mine foremen's examinations, ..... 30
Remarks on coal production, ..... 30
Table No. 1, showing location, etc., of collieries, ..... 41
Table No. 2, number of tons of coal mined, number of days worked, etc., ..... 43
Table No. 3, number of each class of employes, ..... 46
Table No. 4, list of fatal accidents, ..... 49
Table No. 5, list of non-fatal accidents, ..... 56

THIRD ANTHRACITE DISTRICT:

Letter of transmittal, ..... 63
Tons of coal mined by the various companies, ..... 63
Number of fatal and non-fatal accidents and tons of coal produced per life lost and per non-fatal injury, ..... 64
Number of persons employed by each company and number of employes per life lost and person injured, ..... 65
Mine foremen and assistants' examinations, ..... 65
Burning of Maltby and Hunt breakers, ..... 66
Colliery improvements during 1897, ..... 66
Recapitulation of fatal accidents, ..... 70
Table showing number of each class of serious non-fatal accidents, number of each class of employes and nationality of persons injured, 71
Table No. 1, showing location, etc., of collieries, ..... 72
Table No. 2, number of tons of coal mined, number of days worked, etc., ..... 74
Table No. 3, number of each class of employes, ..... 77
Table No. 4, list of fatal accidents, ..... 80
Table No. 5, list of non-fatal accidents, ..... 82

FOURTH ANTHRACITE DISTRICT:

Letter of transmittal, ..... 87
Total production of coal for 1897, ..... 89
Table A, showing number of lives lost, tons of coal produced per fatality and per non-fatal injury, etc., ..... 90
Classification of accidents, ..... 91
Mine accidents, ..... 91
Table B, showing production of coal, number persons employed, number of each class of fatal accidents, etc., ..... 96
Table C, showing production of coal for each of the first two decades and of the last seven years, number fatal accidents of each class, etc., 97
Table D, showing production, average number of accidents for each year of the two first periods of ten years each, etc., ..... 98
Mines and mine inspection, ..... 99
Examination for mine foremen's certificates, ..... 107
Table No. 1, showing location, etc., of collieries, ..... 109
Table No. 2, number of tons of coal mined, number of days worked, etc., ..... 110

Page.
Table No. 3, number of each class of employes, ..... 114
Table No. 4, list of fatal accidents, ..... 118
Table No. 5, list of non-fatal accidents, ..... 123

FIFTH ANTHRACITE DISTRICT:

Letter of transmittal, ..... 125
Tons of coal mined by each company during 1897, ..... 125
Number of fatal accidents and tons of coal mined per life lost, ..... 126
Number of non-fatal accidents and tons of coal produced per person injured, ..... 126
Number fatal and non-fatal accidents and tons of coal mined per accident, ..... 127
Comparative table showing number of tons of coal mined, number fatalities, etc., for ten years, ..... 127
Nationality of persons fatally and non-fatally injured, ..... 127
Comparative table showing causes, etc., of fatal accidents for ten years, ..... 128
Recapitulation of fatal accidents, ..... 129
Recapitulation of non-fatal accidents, ..... 130
Examination for mine foremen and assistants, ..... 131
Colliery improvements during 1897, ..... 131
Remarks on fatal accidents, ..... 137
Cranberry mine fire, ..... 138
Table No. 1, showing location, etc., of collieries, ..... 141
Table No. 2, number of tons of coal mined, number of days worked, etc., ..... 142
Table No. 3, number of each class of employes, ..... 146
Table No. 4, list of fatal accidents, ..... 150
Table No. 5, list of non-fatal accidents, ..... 155

SIXTH ANTHRACITE DISTRICT:

Letter of transmittal, ..... 161
Examination for mine foremen, ..... 162
Number of persons employed inside and outside the mines, and nature of their employment, ..... 162
Quantity of coal produced for 1896 and 1897, ..... 163
Table showing number of fatal accidents and quantity of coal produced per life lost, ..... 163
Number of persons killed, injured, etc., for five years, ..... 164
Table of comparison of various companies as to death rate per year, 165
Nationalities of those killed and injured. ..... 165
Fatal accidents and their causes, ..... 165
Non-fatal accidents and their causes, ..... 166
Summary for 1897, ..... 166
Names of collieries and number of accidents that occurred at each, and names of foremen, ..... 167
Description of collieries, ..... 168
Report of an inquest, ..... 169
Table No. 1, showing location, etc., of collieries, ..... 172
Table No. 2, number of tons of coal mined, number of days worked, etc., ..... 173
Table No. 3, number of each class of employes, ..... 175

Page.
Table No. 4, list of fatal accidents, ..... 177
Table No. 5, list of non-fatal accidents, ..... 184

SEVENTH ANTHRACITE DISTRICT:

Letter of transmittal, ..... 189
Table A, comparative statement of fatal casualties for three years, ... 191
Table B, showing number tons of coal mined by each company, number of casualties and number tons mined for each casualty, ..... 191
Table C, showing comparisons of non-fatal casualties for three years, 191
Table D, showing comparison of coal shipped, etc., ..... 192
Table E, general comparisons for three years, ..... 192
Table F, number of persons employed by the several companies and number of fatalities, ..... 192
Method of mining and robbing pillars, ..... 193
Table No. 1, showing location, etc., of collieries, ..... 196
Table No. 2, number of tons of coal mined, number of days worked, etc., ..... 197
Table No. 3, number of each class of employes, ..... 199
Table No. 4, list of fatal accidents, ..... 201
Table No. 5, list of non-fatal accidents, ..... 203

EIGHTH ANTHRACITE DISTRICT:

Letter of transmittal, ..... 207
Summary of production, etc., ..... 208
Classification of accidents, ..... 209
Nationality of those killed and injured, ..... 209
Number of each class of employes inside, ..... 209
Number of each class of employes outside, ..... 210
Examination of candidates for mine foremen, etc., ..... 210
Description of fatal accidents, ..... 210
Improvements made during 1897, ..... 214
Table No. 1, showing location, etc., of collieries, ..... 219
Table No. 2, number of tons of coal mined, number of days worked, etc., ..... 220
Table No. 3, number of each class of employes, ..... 222
Table No. 4, list of fatal accidents, ..... 224
Table No. 5, list of non-fatal accidents, ..... 226

FIRST BITUMINOUS DISTRICT:

Letter of transmittal, ..... 233
Mining statistics, ..... 234
Description of mines, ..... 235
Description of fatal accidents, ..... 245
Table No. 1, showing location of collieries, ..... 250
Table No. 2, number tons of coal mined, number of days worked, etc., 252
Table No. 1, showing location, etc., of collieries, ..... 250
Table No. 4, list of fatal accidents, ..... 256
Table No. 5, list of non-fatal accidents, ..... 257

SECOND BITUMINOUS DISTRICT:

Letter of transmittal, ..... 261
Summary of statistics, 1897, ..... 262
Classification of accidents, ..... 263

Page.
Dissertations on causes of accidents, ..... 263
Convictions for violations of mining laws, ..... 264
Description of mines and mine improvements, ..... 266
Description of a pneumatic haulage plant, ..... 281
Description of fatal accidents, ..... 283
Table No. 1, showing location, etc., of collieries, ..... 286
Table No. 2, number tons of coal mined, number of days worked, etc., 288
Table No. 3, number of each class of employes, ..... 290
Table No. 4, list of fatal accidents, ..... 292
Table No. 5, list of non-fatal accidents, ..... 293

THIRD BITUMINOUS DISTRICT:

Letter of transmittal, ..... 297
Classification of accidents, ..... 298
Comparative table of production, etc., for 1896 and 1897, ..... 298
Description, etc., of mines, ..... 299
Table No. 1, showing location, etc., of collieries, ..... 312
Table No. 2, number tons of coal mined, number of days worked, etc., 314
Table No. 3, number of each class of employes, ..... 316
Table No. 4, list of fatal accidents, ..... 318
Table No. 5, list of non-fatal accidents, ..... 325

FOURTH BITUMINOUS DISTRICT:

Letter of transmittal, ..... 327
Mining statistics, ..... 327
Classification of fatal and non-fatal accidents, ..... 328
Description, etc., of mines, ..... 328
Table No. 1, showing location, etc., of collieries, ..... 334
Table No. 2, number tons of coal mined, number of days worked, etc., 335
Table No. 3, number of each class of employes, ..... 337
Table No. 4, list of fatal accidents, ..... 339
Table No. 5, list of non-fatal accidents, ..... 340

FIFTH BITUMINOUS DISTRICT:

Letter of transmittal, ..... 343
Summary of statistics, ..... 344
Classification of accidents, ..... 345
Description of mines, ..... 345
Table No. 1, showing location, etc., of collieries, ..... 363
Table No. 2, number tons of coal mined, number days worked, etc., ... 365
Table No. 3, number of each class of employes, ..... 368
Table No. 4, list of fatal accidents, ..... 370
Table No. 5, list of non-fatal accidents, ..... 372

SIXTH BITUMINOUS DISTRICT:

Letter of transmittal, ..... 375
Fatal accidents, ..... 376
Non-fatal accidents, ..... 376
Summary of statistics, ..... 376
Improvements made during year and comments on state of mining in district, ..... 377
Description of mines, ..... 378
Table No. 1, showing location, etc., of collieries, ..... 390
Table No. 2, number tons of coal mined, number days, worked, etc., .. 392

Page.
Table No. 3, number of each class of employes, ..... 394
Table No. 4, list of fatal accidents, ..... 396
Table No. 5, list of non-fatal accidents, ..... 397

SEVENTH BITUMINOUS DISTRICT:

Letter of transmittal, ..... 399
Statistics of mines, number of employes, etc., ..... 401
Number of accidents and their causes, ..... 401
Improvements made and general description of mines in district, .... 401
Description of fatal accidents, ..... 414
Table No. 1, showing location, etc., of collieries, ..... 416
Table No. 2, number tons of coal mined, number days worked, etc., ... 418
Table No. 3, number of each class of employes, ..... 420
Table No. 4, list of fatal accidents, ..... 422
Table No. 5, list of non-fatal accidents, ..... 423

EIGHTH BITUMINOUS DISTRICT:

Letter of transmittal, ..... 427
Table showing number of accidents and their causes, ..... 428
Table showing quantity of coal mined, coke produced, number of employes, etc., ..... 429
Report of Pennsylvania State Hospital, ..... 429
Report of fatal accidents during 1897, and their causes, with some suggestions, ..... 430
Description of mines, ..... 434
Table No. 1, showing location, etc., of collieries, ..... 454
Table No. 2, number tons of coal mined, number of days worked, etc., 456
Table No. 3, number of each class of employes, ..... 459
Table No. 4, list of fatal accidents, ..... 462
Table No. 5, list of non-fatal accidents, ..... 463

NINTH BITUMINOUS DISTRICT:

Letter of transmittal, ..... 465
Accident table for 1897, ..... 466
Nationality of those killed and injured, ..... 466
Summary of statistics for 1897, ..... 466
Description of mines, ..... 467
Description of fatal accidents, ..... 474
Table No. 1, showing location, etc., of collieries, ..... 476
Table No. 2, number tons of coal mined, number days worked, etc., ... 478
Table No. 3, number of each class of employes, ..... 480
Table No. 4, list of fatal accidents, ..... 482
Table No. 5, list of non-fatal accidents, ..... 483

TENTH BITUMINOUS DISTRICT:

Letter of transmittal, ..... 485
Table showing earnings of miners, etc., ..... 486
Summary of statistics, ..... 491
Description of mines, ..... 491
Table No. 1, showing location, etc., of collieries, ..... 501
Table No. 2, number tons of coal mined, number of employes, etc., ..... 506
Table No. 3, number of each class of employes, ..... 508
Table No. 4, list of fatal accidents, ..... 510
Table No. 5, list of non-fatal accidents, ..... 511

REF TN805.P4A3 1897
Report of the Bureau of Mines of the Dep
Univ. of Scranton/Alumni Mem. Lib.
3 9347 00157230 4

University of Scranton
The Library